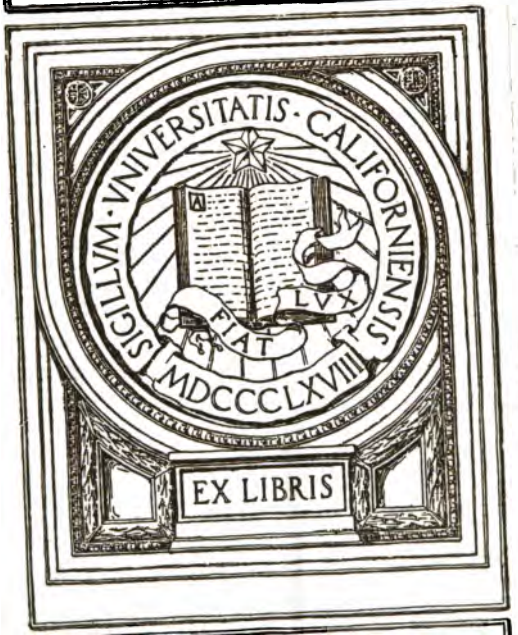
FOUR-PLACE TABLES



FOUR-PLACE

LOGARITHMIC TABLES

CONTAINING THE

LOGARITHMS OF NUMBERS

AND OF THE

TRIGONOMETRIC FUNCTIONS

ARRANGED FOR USE IN THE ENTRANCE EXAMINATIONS OF THE SHEFFIELD SCIENTIFIC SCHOOL OF YALE UNIVERSITY

NEW YORK
HENRY HOLT AND COMPANY
1902

ROBERT DRUMMOND PRINTER NEW YORK.

PREFACE

THESE tables are designed to furnish the student beginning the use of logarithms with an instrument for calculation perfect as far as possible within the limits of four-figure accuracy. The theory of logarithms as taught in the preparatory schools should include some attention to the degree of accuracy attainable in logarithmic computation, and this volume will serve very well to illustrate these principles. The student will appreciate the utility of logarithms just in so far as he is confident of attaining the maximum accuracy of which the system admits.

The admirable work of Dr. C. Bremiker, *Tafeln Vierstelliger Logarithmen*, has been taken as the basis of the present set, which comprises two tables only, viz.:

Logarithms of Numbers from 1 to 2000, pages 2–5;

Logarithms of the Trigonometric Functions, pages 6–29; from 0° to 8° and 82° to 90° for every *one-hundredth*, and from 5° to 85° for every *one-tenth* of a degree.

The division of the degree into decimal parts has much to recommend it theoretically, and is also regarded with favor by many expert computers. In fact, a movement towards the adoption of such a system of subdivision is not only gaining headway in France and Germany, but is making itself felt in this country.

My acknowledgments are due my colleagues, Drs. W. A. Granville and E. R. Hedrick, for valuable assistance in reading proofs.

PERCEY F. SMITH.

SHEFFIELD SCIENTIFIC SCHOOL,
NEW HAVEN, CONN.,
January, 1902.

N.	0	1	2	3	4	5	6	7	8	9
0	——	0000	3010	4771	6021	6990	7782	8451	9031	9542
1	0000	0414	0792	1139	1461	1761	2041	2304	2553	2786
2	3010	3222	3424	3617	3802	3979	4150	4314	4472	4624
3	4771	4914	5051	5185	5315	5441	5563	5682	5798	5911
4	6021	6128	6232	6335	6435	6532	6628	6721	6812	6902
5	6990	7076	7160	7243	7324	7404	7482	7559	7634	7709
6	7782	7853	7924	7993	8062	8129	8195	8261	8325	8388
7	8451	8513	8573	8633	8692	8751	8808	8865	8921	8976
8	9031	9085	9138	9191	9243	9294	9345	9395	9445	9494
9	9542	9590	9638	9685	9731	9777	9823	9868	9912	9956
10	0000	0043	0086	0128	0170	0212	0253	0294	0334	0374
11	0414	0453	0492	0531	0569	0607	0645	0682	0719	0755
12	0792	0828	0864	0899	0934	0969	1004	1038	1072	1106
13	1139	1173	1206	1239	1271	1303	1335	1367	1399	1430
14	1461	1492	1523	1553	1584	1614	1644	1673	1703	1732
15	1761	1790	1818	1847	1875	1903	1931	1959	1987	2014
16	2041	2068	2095	2122	2148	2175	2201	2227	2253	2279
17	2304	2330	2355	2380	2405	2430	2455	2480	2504	2529
18	2553	2577	2601	2625	2648	2672	2695	2718	2742	2765
19	2788	2810	2833	2856	2878	2900	2923	2945	2967	2989
20	3010	3032	3054	3075	3096	3118	3139	3160	3181	3201
21	3222	3243	3263	3284	3304	3324	3345	3365	3385	3404
22	3424	3444	3464	3483	3502	3522	3541	3560	3579	3598
23	3617	3636	3655	3674	3692	3711	3729	3747	3766	3784
24	3802	3820	3838	3856	3874	3892	3909	3927	3945	3962
25	3979	3997	4014	4031	4048	4065	4082	4099	4116	4133
26	4150	4166	4183	4200	4216	4232	4249	4265	4281	4298
27	4314	4330	4346	4362	4378	4393	4409	4425	4440	4456
28	4472	4487	4502	4518	4533	4548	4564	4579	4594	4609
29	4624	4639	4654	4669	4683	4698	4713	4728	4742	4757
30	4771	4786	4800	4814	4829	4843	4857	4871	4886	4900
31	4914	4928	4942	4955	4969	4983	4997	5011	5024	5038
32	5051	5065	5079	5092	5105	5119	5132	5145	5159	5172
33	5185	5198	5211	5224	5237	5250	5263	5276	5289	5302
34	5315	5328	5340	5353	5366	5378	5391	5403	5416	5428
35	5441	5453	5465	5478	5490	5502	5514	5527	5539	5551
36	5563	5575	5587	5599	5611	5623	5635	5647	5658	5670
37	5682	5694	5705	5717	5729	5740	5752	5763	5775	5786
38	5798	5809	5821	5832	5843	5855	5866	5877	5888	5900
39	5911	5922	5933	5944	5955	5966	5977	5988	5999	6010
40	6021	6031	6042	6053	6064	6075	6085	6096	6107	6117
41	6128	6138	6149	6160	6170	6180	6191	6201	6212	6222
42	6232	6243	6253	6263	6274	6284	6294	6304	6314	6325
43	6335	6345	6355	6365	6375	6385	6395	6405	6415	6425
44	6435	6444	6454	6464	6474	6484	6493	6503	6513	6522
45	6532	6542	6551	6561	6571	6580	6590	6599	6609	6618
46	6628	6637	6646	6656	6665	6675	6684	6693	6702	6712
47	6721	6730	6739	6749	6758	6767	6776	6785	6794	6803
48	6812	6821	6830	6839	6848	6857	6866	6875	6884	6893
49	6902	6911	6920	6928	6937	6946	6955	6964	6972	6981
50	6990	6998	7007	7016	7024	7033	7042	7050	7059	7067

N.	0	1	2	3	4	5	6	7	8	9

P. P.		
	22	**21**
1	2.2	2.1
2	4.4	4.2
3	6.6	6.3
4	8.8	8.4
5	11.0	10.5
6	13.2	12.6
7	15.4	14.7
8	17.6	16.8
9	19.8	18.9
	20	**19**
1	2.0	1.9
2	4.0	3.8
3	6.0	5.7
4	8.0	7.6
5	10.0	9.5
6	12.0	11.4
7	14.0	13.3
8	16.0	15.2
9	18.0	17.1
	18	**17**
1	1.8	1.7
2	3.6	3.4
3	5.4	5.1
4	7.2	6.8
5	9.0	8.5
6	10.8	10.2
7	12.6	11.9
8	14.4	13.6
9	16.2	15.3
	16	**15**
1	1.6	1.5
2	3.2	3.0
3	4.8	4.5
4	6.4	6.0
5	8.0	7.5
6	9.6	9.0
7	11.2	10.5
8	12.8	12.0
9	14.4	13.5
	14	**13**
1	1.4	1.3
2	2.8	2.6
3	4.2	3.9
4	5.6	5.2
5	7.0	6.5
6	8.4	7.8
7	9.8	9.1
8	11.2	10.4
9	12.6	11.7
	12	**11**
1	1.2	1.1
2	2.4	2.2
3	3.6	3.3
4	4.8	4.4
5	6.0	5.5
6	7.2	6.6
7	8.4	7.7
8	9.6	8.8
9	10.8	9.9
	9	**8**
1	0.9	0.8
2	1.8	1.6
3	2.7	2.4
4	3.6	3.2
5	4.5	4.0
6	5.4	4.8
7	6.3	5.6
8	7.2	6.4
9	8.1	7.2

N.	0	1	2	3	4	5	6	7	8	9	P. P.
50	6990	6998	7007	7016	7024	7033	7042	7050	7059	7067	
51	7076	7084	7093	7101	7110	7118	7126	7135	7143	7152	**9**
52	7160	7168	7177	7185	7193	7202	7210	7218	7226	7235	1 0.9
53	7243	7251	7259	7267	7275	7284	7292	7300	7308	7316	2 1.8
											3 2.7
54	7324	7332	7340	7348	7356	7364	7372	7380	7388	7396	4 3.6
55	7404	7412	7419	7427	7435	7443	7451	7459	7466	7474	5 4.5
56	7482	7490	7497	7505	7513	7520	7528	7536	7543	7551	6 5.4
											7 6.3
57	7559	7566	7574	7582	7589	7597	7604	7612	7619	7627	8 7.2
58	7634	7642	7649	7657	7664	7672	7679	7686	7694	7701	9 8.1
59	7709	7716	7723	7731	7738	7745	7752	7760	7767	7774	
60	7782	7789	7796	7803	7810	7818	7825	7832	7839	7846	**8**
61	7853	7860	7868	7875	7882	7889	7896	7903	7910	7917	1 0.8
62	7924	7931	7938	7945	7952	7959	7966	7973	7980	7987	2 1.6
63	7993	8000	8007	8014	8021	8028	8035	8041	8048	8055	3 2.4
											4 3.2
64	8062	8069	8075	8082	8089	8096	8102	8109	8116	8122	5 4.0
65	8129	8136	8142	8149	8156	8162	8169	8176	8182	8189	6 4.8
66	8195	8202	8209	8215	8222	8228	8235	8241	8248	8254	7 5.6
											8 6.4
67	8261	8267	8274	8280	8287	8293	8299	8306	8312	8319	9 7.2
68	8325	8331	8338	8344	8351	8357	8363	8370	8376	8382	
69	8388	8395	8401	8407	8414	8420	8426	8432	8439	8445	**7**
70	8451	8457	8463	8470	8476	8482	8488	8494	8500	8506	1 0.7
71	8513	8519	8525	8531	8537	8543	8549	8555	8561	8567	2 1.4
72	8573	8579	8585	8591	8597	8603	8609	8615	8621	8627	3 2.1
73	8633	8639	8645	8651	8657	8663	8669	8675	8681	8686	4 2.8
											5 3.5
74	8692	8698	8704	8710	8716	8722	8727	8733	8739	8745	6 4.2
75	8751	8756	8762	8768	8774	8779	8785	8791	8797	8802	7 4.9
76	8808	8814	8820	8825	8831	8837	8842	8848	8854	8859	8 5.6
											9 6.3
77	8865	8871	8876	8882	8887	8893	8899	8904	8910	8915	**6**
78	8921	8927	8932	8938	8943	8949	8954	8960	8965	8971	1 0.6
79	8976	8982	8987	8993	8998	9004	9009	9015	9020	9025	2 1.2
80	9031	9036	9042	9047	9053	9058	9063	9069	9074	9079	3 1.8
81	9085	9090	9096	9101	9106	9112	9117	9122	9128	9133	4 2.4
82	9138	9143	9149	9154	9159	9165	9170	9175	9180	9186	5 3.0
83	9191	9196	9201	9206	9212	9217	9222	9227	9232	9238	6 3.6
											7 4.2
84	9243	9248	9253	9258	9263	9269	9274	9279	9284	9289	8 4.8
85	9294	9299	9304	9309	9315	9320	9325	9330	9335	9340	9 5.4
86	9345	9350	9355	9360	9365	9370	9375	9380	9385	9390	
											5
87	9395	9400	9405	9410	9415	9420	9425	9430	9435	9440	1 0.5
88	9445	9450	9455	9460	9465	9469	9474	9479	9484	9489	2 1.0
89	9494	9499	9504	9509	9513	9518	9523	9528	9533	9538	3 1.5
											4 2.0
90	9542	9547	9552	9557	9562	9566	9571	9576	9581	9586	5 2.5
91	9590	9595	9600	9605	9609	9614	9619	9624	9628	9633	6 3.0
92	9638	9643	9647	9652	9657	9661	9666	9671	9675	9680	7 3.5
93	9685	9689	9694	9699	9703	9708	9713	9717	9722	9727	8 4.0
											9 4.5
94	9731	9736	9741	9745	9750	9754	9759	9763	9768	9773	
95	9777	9782	9786	9791	9795	9800	9805	9809	9814	9818	**4**
96	9823	9827	9832	9836	9841	9845	9850	9854	9859	9863	1 0.4
											2 0.8
97	9868	9872	9877	9881	9886	9890	9894	9899	9903	9908	3 1.2
98	9912	9917	9921	9926	9930	9934	9939	9943	9948	9952	4 1.6
99	9956	9961	9965	9969	9974	9978	9983	9987	9991	9996	5 2.0
100	0000	0004	0009	0013	0017	0022	0026	0030	0035	0039	6 2.4
											7 2.8
											8 3.2
											9 3.6
N.	0	1	2	3	4	5	6	7	8	9	

N.	0	1	2	3	4	5	6	7	8	9	P. P.
100	0000	0004	0009	0013	0017	0022	0026	0030	0035	0039	
101	0043	0048	0052	0056	0060	0065	0069	0073	0077	0082	
102	0086	0090	0095	0099	0103	0107	0111	0116	0120	0124	
103	0128	0133	0137	0141	0145	0149	0154	0158	0162	0166	
104	0170	0175	0179	0183	0187	0191	0195	0199	0204	0208	
105	0212	0216	0220	0224	0228	0233	0237	0241	0245	0249	
106	0253	0257	0261	0265	0269	0273	0278	0282	0286	0290	5
107	0294	0298	0302	0306	0310	0314	0318	0322	0326	0330	1 0.5
108	0334	0338	0342	0346	0350	0354	0358	0362	0366	0370	2 1.0
109	0374	0378	0382	0386	0390	0394	0398	0402	0406	0410	3 1.5
110	0414	0418	0422	0426	0430	0434	0438	0441	0445	0449	4 2.0
111	0453	0457	0461	0465	0469	0473	0477	0481	0484	0488	5 2.5
112	0492	0496	0500	0504	0508	0512	0515	0519	0523	0527	6 3.0
113	0531	0535	0538	0542	0546	0550	0554	0558	0561	0565	7 3.5
114	0569	0573	0577	0580	0584	0588	0592	0596	0599	0603	8 4.0
115	0607	0611	0615	0618	0622	0626	0630	0633	0637	0641	9 4.5
116	0645	0648	0652	0656	0660	0663	0667	0671	0674	0678	
117	0682	0686	0689	0693	0697	0700	0704	0708	0711	0715	4
118	0719	0722	0726	0730	0734	0737	0741	0745	0748	0752	1 0.4
119	0755	0759	0763	0766	0770	0774	0777	0781	0785	0788	2 0.8
120	0792	0795	0799	0803	0806	0810	0813	0817	0821	0824	3 1.2
121	0828	0831	0835	0839	0842	0846	0849	0853	0856	0860	4 1.6
122	0864	0867	0871	0874	0878	0881	0885	0888	0892	0896	5 2.0
123	0899	0903	0906	0910	0913	0917	0920	0924	0927	0931	6 2.4
124	0934	0938	0941	0945	0948	0952	0955	0959	0962	0966	7 2.8
125	0969	0973	0976	0980	0983	0986	0990	0993	0997	1000	8 3.2
126	1004	1007	1011	1014	1017	1021	1024	1028	1031	1035	9 3.6
127	1038	1041	1045	1048	1052	1055	1059	1062	1065	1069	
128	1072	1075	1079	1082	1086	1089	1093	1096	1099	1103	3
129	1106	1109	1113	1116	1119	1123	1126	1129	1133	1136	1 0.3
130	1139	1143	1146	1149	1153	1156	1159	1163	1166	1169	2 0.6
131	1173	1176	1179	1183	1186	1189	1193	1196	1199	1202	3 0.9
132	1206	1209	1212	1216	1219	1222	1225	1229	1232	1235	4 1.2
133	1239	1242	1245	1248	1252	1255	1258	1261	1265	1268	5 1.5
134	1271	1274	1278	1281	1284	1287	1290	1294	1297	1300	6 1.8
135	1303	1307	1310	1313	1316	1319	1323	1326	1329	1332	7 2.1
136	1335	1339	1342	1345	1348	1351	1355	1358	1361	1364	8 2.4
137	1367	1370	1374	1377	1380	1383	1386	1389	1392	1396	9 2.7
138	1399	1402	1405	1408	1411	1414	1418	1421	1424	1427	
139	1430	1433	1436	1440	1443	1446	1449	1452	1455	1458	2
140	1461	1464	1467	1471	1474	1477	1480	1483	1486	1489	1 0.2
141	1492	1495	1498	1501	1504	1508	1511	1514	1517	1520	2 0.4
142	1523	1526	1529	1532	1535	1538	1541	1544	1547	1550	3 0.6
143	1553	1556	1559	1562	1565	1569	1572	1575	1578	1581	4 0.8
144	1584	1587	1590	1593	1596	1599	1602	1605	1608	1611	5 1.0
145	1614	1617	1620	1623	1626	1629	1632	1635	1638	1641	6 1.2
146	1644	1647	1649	1652	1655	1658	1661	1664	1667	1670	7 1.4
147	1673	1676	1679	1682	1685	1688	1691	1694	1697	1700	8 1.6
148	1703	1706	1708	1711	1714	1717	1720	1723	1726	1729	9 1.8
149	1732	1735	1738	1741	1744	1746	1749	1752	1755	1758	
150	1761	1764	1767	1770	1772	1775	1778	1781	1784	1787	
N.	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	

N.	0	1	2	3	4	5	6	7	8	9	P. P.
150	1761	1764	1767	1770	1772	1775	1778	1781	1784	1787	
151	1790	1793	1796	1798	1801	1804	1807	1810	1813	1816	
152	1818	1821	1824	1827	1830	1833	1836	1838	1841	1844	
153	1847	1850	1853	1855	1858	1861	1864	1867	1870	1872	
154	1875	1878	1881	1884	1886	1889	1892	1895	1898	1901	
155	1903	1906	1909	1912	1915	1917	1920	1923	1926	1928	
156	1931	1934	1937	1940	1942	1945	1948	1951	1953	1956	
157	1959	1962	1965	1967	1970	1973	1976	1978	1981	1984	**3**
158	1987	1989	1992	1995	1998	2000	2003	2006	2009	2011	1 0.3
159	2014	2017	2019	2022	2025	2028	2030	2033	2036	2038	2 0.6
160	2041	2044	2047	2049	2052	2055	2057	2060	2063	2066	3 0.9
161	2068	2071	2074	2076	2079	2082	2084	2087	2090	2092	4 1.2
162	2095	2098	2101	2103	2106	2109	2111	2114	2117	2119	5 1.5
163	2122	2125	2127	2130	2133	2135	2138	2140	2143	2146	6 1.8
164	2148	2151	2154	2156	2159	2162	2164	2167	2170	2172	7 2.1
165	2175	2177	2180	2183	2185	2188	2191	2193	2196	2198	8 2.4
166	2201	2204	2206	2209	2212	2214	2217	2219	2222	2225	9 2.7
167	2227	2230	2232	2235	2238	2240	2243	2245	2248	2251	
168	2253	2256	2258	2261	2263	2266	2269	2271	2274	2276	
169	2279	2281	2284	2287	2289	2292	2294	2297	2299	2302	
170	2304	2307	2310	2312	2315	2317	2320	2322	2325	2327	
171	2330	2333	2335	2338	2340	2343	2345	2348	2350	2353	
172	2355	2358	2360	2363	2365	2368	2370	2373	2375	2378	
173	2380	2383	2385	2388	2390	2393	2395	2398	2400	2403	
174	2405	2408	2410	2413	2415	2418	2420	2423	2425	2428	
175	2430	2433	2435	2438	2440	2443	2445	2448	2450	2453	
176	2455	2458	2460	2463	2465	2467	2470	2472	2475	2477	
177	2480	2482	2485	2487	2490	2492	2494	2497	2499	2502	**2**
178	2504	2507	2509	2512	2514	2516	2519	2521	2524	2526	1 0.2
179	2529	2531	2533	2536	2538	2541	2543	2545	2548	2550	2 0.4
180	2553	2555	2558	2560	2562	2565	2567	2570	2572	2574	3 0.6
181	2577	2579	2582	2584	2586	2589	2591	2594	2596	2598	4 0.8
182	2601	2603	2605	2608	2610	2613	2615	2617	2620	2622	5 1.0
183	2625	2627	2629	2632	2634	2636	2639	2641	2643	2646	6 1.2
184	2648	2651	2653	2655	2658	2660	2662	2665	2667	2669	7 1.4
185	2672	2674	2676	2679	2681	2683	2686	2688	2690	2693	8 1.6
186	2695	2697	2700	2702	2704	2707	2709	2711	2714	2716	9 1.8
187	2718	2721	2723	2725	2728	2730	2732	2735	2737	2739	
188	2742	2744	2746	2749	2751	2753	2755	2758	2760	2762	
189	2765	2767	2769	2772	2774	2776	2778	2781	2783	2785	
190	2788	2790	2792	2794	2797	2799	2801	2804	2806	2808	
191	2810	2813	2815	2817	2819	2822	2824	2826	2828	2831	
192	2833	2835	2838	2840	2842	2844	2847	2849	2851	2853	
193	2856	2858	2860	2862	2865	2867	2869	2871	2874	2876	
194	2878	2880	2883	2885	2887	2889	2891	2894	2896	2898	
195	2900	2903	2905	2907	2909	2911	2914	2916	2918	2920	
196	2923	2925	2927	2929	2931	2934	2936	2938	2940	2942	
197	2945	2947	2949	2951	2953	2956	2958	2960	2962	2964	
198	2967	2969	2971	2973	2975	2978	2980	2982	2984	2986	
199	2989	2991	2993	2995	2997	2999	3002	3004	3006	3008	
200	3010	3012	3015	3017	3019	3021	3023	3025	3028	3030	
N.	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	

1°/100	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.		P. P.		
00	—		—		—	0.0000	100	86	85	84
01	6.2419		6.2419		3.7581	0.0000	99	8.6	8.5	8.4
02	6.5429	———	6.5429	———	3.4571	0.0000	98	17.2	17.0	16.8
03	6.7190	———	6.7190	———	3.2810	0.0000	97	25.8	25.5	25.2
		———		———				34.4	34.0	33.6
04	6.8439		6.8439		3.1561	0.0000	96	43.0	42.5	42.0
05	6.9408	969	6.9408	969	3.0592	0.0000	95	51.6	51.0	50.4
06	7.0200	792	7.0200	792	2.9800	0.0000	94	60.2	59.5	58.8
		670		670				68.8	68.0	67.2
07	7.0870		7.0870		2.9130	0.0000	93	77.4	76.5	75.6
08	7.1450	580	7.1450	580	2.8550	0.0000	92	83	82	81
09	7.1961	511	7.1961	511	2.8039	0.0000	91	8.3	8.2	8.1
10	7.2419	458	7.2419	458	2.7581	0.0000	90	16.6	16.4	16.2
		414		414				24.9	24.6	24.3
11	7.2833		7.2833		2.7167	0.0000	89	33.2	32.8	32.4
12	7.3211	378	7.3211	378	2.6789	0.0000	88	41.5	41.0	40.5
13	7.3558	347	7.3558	347	2.6442	0.0000	87	49.8	49.2	48.6
		322		322				58.1	57.4	56.7
14	7.3880		7.3880		2.6120	0.0000	86	66.4	65.6	64.8
15	7.4180	300	7.4180	300	2.5820	0.0000	85	74.7	73.8	72.9
16	7.4460	280	7.4460	280	2.5540	0.0000	84	79	78	77
		263		263				7.9	7.8	7.7
17	7.4723		7.4723		2.5277	0.0000	83	15.8	15.6	15.4
18	7.4971	248	7.4972	249	2.5028	0.0000	82	23.7	23.4	23.1
19	7.5206	235	7.5206	234	2.4794	0.0000	81	31.6	31.2	30.8
		223		223				39.5	39.0	38.5
20	7.5429		7.5429		2.4571	0.0000	80	47.4	46.8	46.2
21	7.5641	212	7.5641	212	2.4359	0.0000	79	55.3	54.6	53.9
22	7.5843	202	7.5843	202	2.4157	0.0000	78	63.2	62.4	61.6
23	7.6036	193	7.6036	193	2.3964	0.0000	77	71.1	70.2	69.3
		185		185				76	75	74
24	7.6221		7.6221		2.3779	0.0000	76	7.6	7.5	7.4
25	7.6398	177	7.6398	177	2.3602	0.0000	75	15.2	15.0	14.8
26	7.6568	170	7.6569	171	2.3431	0.0000	74	22.8	22.5	22.2
		164		163				30.4	30.0	29.6
27	7.6732		7.6732		2.3268	0.0000	73	38.0	37.5	37.0
28	7.6890	158	7.6890	158	2.3110	0.0000	72	45.6	45.0	44.4
29	7.7043	153	7.7043	153	2.2957	0.0000	71	53.2	52.5	51.8
		147		147				60.8	60.0	59.2
30	7.7190		7.7190		2.2810	0.0000	70	68.4	67.5	66.6
31	7.7332	142	7.7332	142	2.2668	0.0000	69	73	72	71
32	7.7470	138	7.7470	138	2.2530	0.0000	68	7.3	7.2	7.1
33	7.7604	134	7.7604	134	2.2396	0.0000	67	14.6	14.4	14.2
		130		130				21.9	21.6	21.3
34	7.7734		7.7734		2.2266	0.0000	66	29.2	28.8	28.4
35	7.7859	125	7.7860	126	2.2140	0.0000	65	36.5	36.0	35.5
36	7.7982	123	7.7982	122	2.2018	0.0000	64	43.8	43.2	42.6
		119		119				51.1	50.4	49.7
37	7.8101		7.8101		2.1899	0.0000	63	58.4	57.6	56.8
38	7.8217	116	7.8217	116	2.1783	0.0000	62	65.7	64.8	63.9
39	7.8329	112	7.8329	112	2.1671	0.0000	61	69	68	67
		110		110				6.9	6.8	6.7
40	7.8439		7.8439		2.1561	0.0000	60	13.8	13.6	13.4
41	7.8547	108	7.8547	108	2.1453	0.0000	59	20.7	20.4	20.1
42	7.8651	104	7.8651	104	2.1349	0.0000	58	27.6	27.2	26.8
43	7.8753	102	7.8754	103	2.1246	0.0000	57	34.5	34.0	33.5
		100		99				41.4	40.8	40.2
44	7.8853		7.8853		2.1147	0.0000	56	48.3	47.6	46.9
45	7.8951	98	7.8951	98	2.1049	0.0000	55	55.2	54.4	53.6
46	7.9046	95	7.9046	95	2.0954	0.0000	54	62.1	61.2	60.3
		94		94				66	65	64
47	7.9140		7.9140		2.0860	0.0000	53	6.6	6.5	6.4
48	7.9231	91	7.9231	91	2.0769	0.0000	52	13.2	13.0	12.8
49	7.9321	90	7.9321	90	2.0678	0.0000	51	19.8	19.5	19.2
		87		88				26.4	26.0	25.6
50	7.9408		7.9409		2.0591	0.0000	50	33.0	32.5	32.0
								39.6	39.0	38.4
								46.2	45.5	44.8
								52.8	52.0	51.2
								59.4	58.5	57.6
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	1°/100			

1°/100	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.		P. P.
50	7.9408		7.9409		2.0591	0.0000	**50**	
		86		86				**63 62 61**
51	7.9494		7.9495		2.0505	0.0000	49	1 6.3 6.2 6.1
52	7.9579	85	7.9579	84	2.0421	0.0000	48	2 12.6 12.4 12.2
53	7.9661	82	7.9662	83	2.0338	0.0000	47	3 18.9 18.6 18.3
		82		81				4 25.2 24.8 24.4
54	7.9743		7.9743		2.0257	0.0000	46	5 31.5 31.0 30.5
55	7.9822	79	7.9823	80	2.0177	0.0000	45	6 37.8 37.2 36.6
56	7.9901	79	7.9901	78	2.0099	0.0000	44	7 44.1 43.4 42.7
		76		77				8 50.4 49.6 48.8
57	7.9977		7.9978		2.0022	0.0000	43	9 56.7 55.8 54.9
58	8.0053	76	8.0053	75	1.9947	0.0000	42	**60 59 58**
59	8.0127	74	8.0127	74	1.9873	0.0000	41	1 6.0 5.9 5.8
60	8.0200	73	8.0200	73	1.9800	0.0000	**40**	2 12.0 11.8 11.6
		72		72				3 18.0 17.7 17.4
61	8.0272		8.0272		1.9728	0.0000	39	4 24.0 23.6 23.2
62	8.0343	71	8.0343	71	1.9657	0.0000	38	5 30.0 29.5 29.0
63	8.0412	69	8.0412	69	1.9588	0.0000	37	6 36.0 35.4 34.8
		68		69				7 42.0 41.3 40.6
64	8.0480		8.0481		1.9519	0.0000	36	8 48.0 47.2 46.4
65	8.0548	68	8.0548	67	1.9452	0.0000	35	9 54.0 53.1 52.2
66	8.0614	66	8.0614	66	1.9386	0.0000	34	**57 56 55**
		65		66				1 5.7 5.6 5.5
67	8.0679		8.0680		1.9320	0.0000	33	2 11.4 11.2 11.0
68	8.0744	65	8.0744	64	1.9256	0.0000	32	3 17.1 16.8 16.5
69	8.0807	63	8.0807	63	1.9193	0.0000	31	4 22.8 22.4 22.0
		63		63				5 28.5 28.0 27.5
70	8.0870		8.0870		1.9130	0.0000	**30**	6 34.2 33.6 33.0
71	8.0931	61	8.0932	62	1.9068	0.0000	29	7 39.9 39.2 38.5
72	8.0992	61	8.0992	60	1.9008	0.0000	28	8 45.6 44.8 44.0
73	8.1052	60	8.1052	60	1.8948	0.0000	27	9 51.3 50.4 49.5
		59		59				**54 53 52**
74	8.1111		8.1111		1.8889	0.0000	26	1 5.4 5.3 5.2
75	8.1169	58	8.1170	59	1.8830	0.0000	25	2 10.8 10.6 10.4
76	8.1227	58	8.1227	57	1.8773	0.0000	24	3 16.2 15.9 15.6
		57		57				4 21.6 21.2 20.8
77	8.1284		8.1284		1.8716	0.0000	23	5 27.0 26.5 26.0
78	8.1340	56	8.1340	56	1.8660	0.0000	22	6 32.4 31.8 31.2
79	8.1395	55	8.1395	55	1.8605	0.0000	21	7 37.8 37.1 36.4
		55		55				8 43.2 42.4 41.6
80	8.1450		8.1450		1.8550	0.0000	**20**	9 48.6 47.7 46.8
81	8.1503	53	8.1504	54	1.8496	0.0000	19	**51 50 49**
82	8.1557	54	8.1557	53	1.8443	0.0000	18	1 5.1 5.0 4.9
83	8.1609	52	8.1610	53	1.8390	0.0000	17	2 10.2 10.0 9.8
		52		52				3 15.3 15.0 14.7
84	8.1661		8.1662		1.8338	0.0000	16	4 20.4 20.0 19.6
85	8.1713	52	8.1713	51	1.8287	0.0000	15	5 25.5 25.0 24.5
86	8.1764	51	8.1764	51	1.8236	0.0000	14	6 30.6 30.0 29.4
		50		50				7 35.7 35.0 34.3
87	8.1814		8.1814		1.8186	9.9999	13	8 40.8 40.0 39.2
88	8.1863	49	8.1864	50	1.8136	9.9999	12	9 45.9 45.0 44.1
89	8.1912	49	8.1913	49	1.8087	9.9999	11	**48 47 46**
		49		49				1 4.8 4.7 4.6
90	8.1961		8.1962		1.8038	9.9999	**10**	2 9.6 9.4 9.2
91	8.2009	48	8.2010	48	1.7990	9.9999	09	3 14.4 14.1 13.8
92	8.2056	47	8.2057	47	1.7943	9.9999	08	4 19.2 18.8 18.4
93	8.2103	47	8.2104	47	1.7896	9.9999	07	5 24.0 23.5 23.0
		47		46				6 28.8 28.2 27.6
94	8.2150		8.2150		1.7850	9.9999	06	7 33.6 32.9 32.2
95	8.2196	46	8.2196	46	1.7804	9.9999	05	8 38.4 37.6 36.8
96	8.2241	45	8.2242	46	1.7758	9.9999	04	9 43.2 42.3 41.4
		45		45				**45 44 43**
97	8.2286		8.2287		1.7713	9.9999	03	1 4.5 4.4 4.3
98	8.2331	45	8.2331	44	1.7669	9.9999	02	2 9.0 8.8 8.6
99	8.2375	44	8.2376	45	1.7624	9.9999	01	3 13.5 13.2 12.9
100	8.2419	44	8.2419	43	1.7581	9.9999	**00**	4 18.0 17.6 17.2
								5 22.5 22.0 21.5
								6 27.0 26.4 25.8
								7 31.5 30.8 30.1
								8 36.0 35.2 34.4
								9 40.5 39.6 38.7
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	1°/100	

1°/100	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.		P. P.	
00	8.2419		8.2419		1.7581	9.9999	**100**		
		43		43				**43**	**42**
01	8.2462		8.2462		1.7538	9.9999	99	1 4.3	4.2
02	8.2505	43	8.2505	43	1.7495	9.9999	98	2 8.6	8.4
03	8.2547	42	8.2548	43	1.7452	9.9999	97	3 12.9	12.6
		42		42				4 17.2	16.8
04	8.2589		8.2590		1.7410	9.9999	96	5 21.5	21.0
05	8.2630	41	8.2631	41	1.7369	9.9999	95	6 25.8	25.2
06	8.2672	42	8.2672	41	1.7328	9.9999	94	7 30.1	29.4
		40		41				8 34.4	33.6
07	8.2712		8.2713		1.7287	9.9999	93	9 38.7	37.8
08	8.2753	41	8.2754	41	1.7246	9.9999	92		
09	8.2793	40	8.2794	40	1.7206	9.9999	91		**41** **40**
		39		39				1 4.1	4.0
10	8.2832		8.2833		1.7167	9.9999	**90**	2 8.2	8.0
		40		40				3 12.3	12.0
11	8.2872		8.2873		1.7127	9.9999	89	4 16.4	16.0
12	8.2911	39	8.2912	39	1.7088	9.9999	88	5 20.5	20.0
13	8.2949	38	8.2950	38	1.7050	9.9999	87	6 24.6	24.0
		39		38				7 28.7	28.0
14	8.2988		8.2988		1.7012	9.9999	86	8 32.8	32.0
15	8.3025	37	8.3026	38	1.6974	9.9999	85	9 36.9	36.0
16	8.3063	38	8.3064	38	1.6936	9.9999	84		
		37		37					**39** **38**
17	8.3100		8.3101		1.6899	9.9999	83	1 3.9	3.8
18	8.3137	37	8.3138	37	1.6862	9.9999	82	2 7.8	7.6
19	8.3174	37	8.3175	37	1.6825	9.9999	81	3 11.7	11.4
		36		36				4 15.6	15.2
20	8.3210		8.3211		1.6789	9.9999	**80**	5 19.5	19.0
		36		36				6 23.4	22.8
21	8.3246		8.3247		1.6753	9.9999	79	7 27.3	26.6
22	8.3282	36	8.3283	36	1.6717	9.9999	78	8 31.2	30.4
23	8.3317	35	8.3318	35	1.6682	9.9999	77	9 35.1	34.2
		36		36					
24	8.3353		8.3354		1.6646	9.9999	76		**37** **36**
25	8.3388	35	8.3389	35	1.6611	9.9999	75	1 3.7	3.6
26	8.3422	34	8.3423	34	1.6577	9.9999	74	2 7.4	7.2
		34		35				3 11.1	10.8
27	8.3456		8.3458		1.6542	9.9999	73	4 14.8	14.4
28	8.3491	35	8.3492	34	1.6508	9.9999	72	5 18.5	18.0
29	8.3524	33	8.3525	33	1.6475	9.9999	71	6 22.2	21.6
		34		34				7 25.9	25.2
30	8.3558		8.3559		1.6441	9.9999	**70**	8 29.6	28.8
		33		33				9 33.3	32.4
31	8.3591		8.3592		1.6408	9.9999	69		
32	8.3624	33	8.3625	33	1.6375	9.9999	68		**35** **34**
33	8.3657	33	8.3658	33	1.6342	9.9999	67	1 3.5	3.4
		32		33				2 7.0	6.8
34	8.3689		8.3691		1.6309	9.9999	66	3 10.5	10.2
35	8.3722	33	8.3723	32	1.6277	9.9999	65	4 14.0	13.6
36	8.3754	32	8.3755	32	1.6245	9.9999	64	5 17.5	17.0
		32		32				6 21.0	20.4
37	8.3786		8.3787		1.6213	9.9999	63	7 24.5	23.8
38	8.3817	31	8.3818	31	1.6182	9.9999	62	8 28.0	27.2
39	8.3848	31	8.3850	32	1.6150	9.9999	61	9 31.5	30.6
		32		31					
40	8.3880		8.3881		1.6119	9.9999	**60**		**33** **32**
		31		31				1 3.3	3.2
41	8.3911		8.3912		1.6088	9.9999	59	2 6.6	6.4
42	8.3941	30	8.3943	31	1.6057	9.9999	58	3 9.9	9.6
43	8.3972	31	8.3973	30	1.6027	9.9999	57	4 13.2	12.8
		30		30				5 16.5	16.0
44	8.4002		8.4003		1.5997	9.9999	56	6 19.8	19.2
45	8.4032	30	8.4033	30	1.5967	9.9999	55	7 23.1	22.4
46	8.4062	30	8.4063	30	1.5937	9.9999	54	8 26.4	25.6
		29		30				9 29.7	28.8
47	8.4091		8.4093		1.5907	9.9999	53		
48	8.4121	30	8.4122	29	1.5878	9.9999	52		**31** **29**
49	8.4150	29	8.4152	30	1.5848	9.9999	51	1 3.1	2.9
		29		29				2 6.2	5.8
50	8.4179		8.4181		1.5819	9.9999	**50**	3 9.3	8.7
								4 12.4	11.6
								5 15.5	14.5
								6 18.6	17.4
								7 21.7	20.3
								8 24.8	23.2
								9 27.9	26.1
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	1°/100		

1°/100	Lg. Sin.	d.	Lg.Tan.	c. d.	Lg. Cot.	Lg. Cos.		P. P.
50	8.4179		8.4181		1.5819	9.9999	**50**	
51	8.4208	29	8.4210	29	1.5790	9.9998	49	
52	8.4237	29	8.4238	28	1.5762	9.9998	48	
53	8.4265	28	8.4267	29	1.5733	9.9998	47	
54	8.4293	28	8.4295	28	1.5705	9.9998	46	
55	8.4322	29	8.4323	28	1.5677	9.9998	45	
56	8.4349	27	8.4351	28	1.5649	9.9998	44	
57	8.4377	28	8.4379	28	1.5621	9.9998	43	
58	8.4405	28	8.4406	27	1.5594	9.9998	42	
59	8.4432	27	8.4434	28	1.5566	9.9998	41	
60	8.4459	27	8.4461	27	1.5539	9.9998	**40**	
61	8.4486	27	8.4488	27	1.5512	9.9998	39	
62	8.4513	27	8.4515	27	1.5485	9.9998	38	
63	8.4540	27	8.4542	27	1.5458	9.9998	37	
64	8.4567	27	8.4568	26	1.5432	9.9998	36	
65	8.4593	26	8.4595	27	1.5405	9.9998	35	
66	8.4619	26	8.4621	26	1.5379	9.9998	34	
67	8.4645	26	8.4647	26	1.5353	9.9998	33	
68	8.4671	26	8.4673	26	1.5327	9.9998	32	
69	8.4697	26	8.4699	26	1.5301	9.9998	31	
70	8.4723	26	8.4725	26	1.5275	9.9998	**30**	
71	8.4748	25	8.4750	25	1.5250	9.9998	29	
72	8.4773	25	8.4775	25	1.5225	9.9998	28	
73	8.4799	26	8.4801	26	1.5199	9.9998	27	
74	8.4824	25	8.4826	25	1.5174	9.9998	26	
75	8.4848	24	8.4851	25	1.5149	9.9998	25	
76	8.4873	25	8.4875	24	1.5125	9.9998	24	
77	8.4898	25	8.4900	25	1.5100	9.9998	23	
78	8.4922	24	8.4924	24	1.5076	9.9998	22	
79	8.4947	25	8.4949	25	1.5051	9.9998	21	
80	8.4971	24	8.4973	24	1.5027	9.9998	**20**	
81	8.4995	24	8.4997	24	1.5003	9.9998	19	
82	8.5019	24	8.5021	24	1.4979	9.9998	18	
83	8.5043	24	8.5045	24	1.4955	9.9998	17	
84	8.5066	23	8.5068	23	1.4932	9.9998	16	
85	8.5090	24	8.5092	24	1.4908	9.9998	15	
86	8.5113	23	8.5115	23	1.4885	9.9998	14	
87	8.5136	23	8.5139	24	1.4861	9.9998	13	
88	8.5160	24	8.5162	23	1.4838	9.9998	12	
89	8.5183	23	8.5185	23	1.4815	9.9998	11	
90	8.5206	23	8.5208	23	1.4792	9.9998	**10**	
91	8.5228	22	8.5231	23	1.4769	9.9998	09	
92	8.5251	23	8.5253	22	1.4747	9.9998	08	
93	8.5274	23	8.5276	23	1.4724	9.9998	07	
94	8.5296	22	8.5298	22	1.4702	9.9998	06	
95	8.5318	22	8.5321	23	1.4679	9.9997	05	
96	8.5340	22	8.5343	22	1.4657	9.9997	04	
97	8.5363	23	8.5365	22	1.4635	9.9997	03	
98	8.5385	22	8.5387	22	1.4613	9.9997	02	
99	8.5406	21	8.5409	22	1.4591	9.9997	01	
100	8.5428	22	8.5431	22	1.4569	9.9997	**00**	
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg.Tan.	Lg. Sin.	1°/100	

	29	28
1	2.9	2.8
2	5.8	5.6
3	8.7	8.4
4	11.6	11.2
5	14.5	14.0
6	17.4	16.8
7	20.3	19.6
8	23.2	22.4
9	26.1	25.2

	27
1	2.7
2	5.4
3	8.1
4	10.8
5	13.5
6	16.2
7	18.9
8	21.6
9	24.3

	26	25
1	2.6	2.5
2	5.2	5.0
3	7.8	7.5
4	10.4	10.0
5	13.0	12.5
6	15.6	15.0
7	18.2	17.5
8	20.8	20.0
9	23.4	22.5

	24
1	2.4
2	4.8
3	7.2
4	9.6
5	12.0
6	14.4
7	16.8
8	19.2
9	21.6

	23	22
1	2.3	2.2
2	4.6	4.4
3	6.9	6.6
4	9.2	8.8
5	11.5	11.0
6	13.8	13.2
7	16.1	15.4
8	18.4	17.6
9	20.7	19.8

	21
1	2.1
2	4.2
3	6.3
4	8.4
5	10.5
6	12.6
7	14.7
8	16.8
9	18.9

1°/100	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.		P. P.
00	8.5428		8.5431		1.4569	9.9997	**100**	
01	8.5450	22	8.5453	22	1.4547	9.9997	99	
02	8.5471	21	8.5474	21	1.4526	9.9997	98	**22**
03	8.5493	22	8.5496	22	1.4504	9.9997	97	1 2.2
		21		21				2 4.4
04	8.5514		8.5517		1.4483	9.9997	96	3 6.6
05	8.5535	21	8.5538	21	1.4462	9.9997	95	4 8.8
06	8.5557	22	8.5559	21	1.4441	9.9997	94	5 11.0
		21		21				6 13.2
07	8.5578		8.5580		1.4420	9.9997	93	7 15.4
08	8.5598	20	8.5601	21	1.4399	9.9997	92	8 17.6
09	8.5619	21	8.5622	21	1.4378	9.9997	91	9 19.8
10	8.5640	21	8.5643	21	1.4357	9.9997	**90**	
11	8.5661	21	8.5664	21	1.4336	9.9997	89	**21**
12	8.5681	20	8.5684	20	1.4316	9.9997	88	1 2.1
13	8.5702	21	8.5705	21	1.4295	9.9997	87	2 4.2
		20		20				3 6.3
14	8.5722		8.5725		1.4275	9.9997	86	4 8.4
15	8.5742	20	8.5745	20	1.4255	9.9997	85	5 10.5
16	8.5762	20	8.5765	20	1.4235	9.9997	84	6 12.6
		20		20				7 14.7
17	8.5782		8.5785		1.4215	9.9997	83	8 16.8
18	8.5802	20	8.5805	20	1.4195	9.9997	82	9 18.9
19	8.5822	20	8.5825	20	1.4175	9.9997	81	
20	8.5842	20	8.5845	20	1.4155	9.9997	**80**	**20**
21	8.5862	20	8.5865	20	1.4135	9.9997	79	1 2.0
22	8.5881	19	8.5884	19	1.4116	9.9997	78	2 4.0
23	8.5901	20	8.5904	20	1.4096	9.9997	77	3 6.0
		19		19				4 8.0
24	8.5920		8.5923		1.4077	9.9997	76	5 10.0
25	8.5939	19	8.5943	20	1.4057	9.9997	75	6 12.0
26	8.5959	20	8.5962	19	1.4038	9.9997	74	7 14.0
		19		19				8 16.0
27	8.5978		8.5981		1.4019	9.9997	73	9 18.0
28	8.5997	19	8.6000	19	1.4000	9.9997	72	
29	8.6016	19	8.6019	19	1.3981	9.9997	71	**19**
30	8.6035	19	8.6038	19	1.3962	9.9996	**70**	1 1.9
31	8.6054	19	8.6057	19	1.3943	9.9996	69	2 3.8
32	8.6072	18	8.6076	19	1.3924	9.9996	68	3 5.7
33	8.6091	19	8.6095	19	1.3905	9.9996	67	4 7.6
		19		18				5 9.5
34	8.6110		8.6113		1.3887	9.9996	66	6 11.4
35	8.6128	18	8.6132	19	1.3868	9.9996	65	7 13.3
36	8.6147	19	8.6150	18	1.3850	9.9996	64	8 15.2
		18		19				9 17.1
37	8.6165		8.6169		1.3831	9.9996	63	
38	8.6183	18	8.6187	18	1.3813	9.9996	62	**18**
39	8.6201	18	8.6205	18	1.3795	9.9996	61	1 1.8
40	8.6220	19	8.6223	18	1.3777	9.9996	**60**	2 3.6
41	8.6238	18	8.6242	19	1.3758	9.9996	59	3 5.4
42	8.6256	18	8.6260	18	1.3740	9.9996	58	4 7.2
43	8.6274	18	8.6277	17	1.3723	9.9996	57	5 9.0
		17		18				6 10.8
44	8.6291		8.6295		1.3705	9.9996	56	7 12.6
45	8.6309	18	8.6313	18	1.3687	9.9996	55	8 14.4
46	8.6327	18	8.6331	18	1.3669	9.9996	54	9 16.2
		17		17				
47	8.6344		8.6348		1.3652	9.9996	53	**17**
48	8.6362	18	8.6366	18	1.3634	9.9996	52	1 1.7
49	8.6379	17	8.6384	18	1.3616	9.9996	51	2 3.4
		18		17				3 5.1
50	8.6397		8.6401		1.3599	9.9996	**50**	4 6.8
								5 8.5
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	1°/100	6 10.2
								7 11.9
								8 13.6
								9 15.3

1°/100	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.		P. P.
50	8.6397		8.6401		1.3599	9.9996	50	
51	8.6414	17	8.6418	17	1.3582	9.9996	49	
52	8.6431	17	8.6436	18	1.3564	9.9996	48	
53	8.6449	18	8.6453	17	1.3547	9.9996	47	
54	8.6466	17	8.6470	17	1.3530	9.9996	46	18
55	8.6483	17	8.6487	17	1.3513	9.9996	45	1 1.8
56	8.6500	17	8.6504	17	1.3496	9.9996	44	2 3.6
57	8.6517	17	8.6521	17	1.3479	9.9996	43	3 5.4
58	8.6534	17	8.6538	17	1.3462	9.9996	42	4 7.2
59	8.6550	16	8.6555	17	1.3445	9.9996	41	5 9.0
60	8.6567	17	8.6571	16	1.3429	9.9996	40	6 10.8
61	8.6584	17	8.6588	17	1.3412	9.9995	39	7 12.6
62	8.6600	16	8.6605	17	1.3395	9.9995	38	8 14.4
63	8.6617	17	8.6621	16	1.3379	9.9995	37	9 16.2
64	8.6633	16	8.6638	17	1.3362	9.9995	36	17
65	8.6650	17	8.6654	16	1.3346	9.9995	35	1 1.7
66	8.6666	16	8.6671	17	1.3329	9.9995	34	2 3.4
67	8.6682	16	8.6687	16	1.3313	9.9995	33	3 5.1
68	8.6699	17	8.6703	16	1.3297	9.9995	32	4 6.8
69	8.6715	16	8.6719	16	1.3281	9.9995	31	5 8.5
70	8.6731	16	8.6736	17	1.3264	9.9995	30	6 10.2
71	8.6747	16	8.6752	16	1.3248	9.9995	29	7 11.9
72	8.6763	16	8.6768	16	1.3232	9.9995	28	8 13.6
73	8.6779	16	8.6784	16	1.3216	9.9995	27	9 15.3
74	8.6795	16	8.6800	16	1.3200	9.9995	26	16
75	8.6810	15	8.6815	15	1.3185	9.9995	25	1 1.6
76	8.6826	16	8.6831	16	1.3169	9.9995	24	2 3.2
77	8.6842	16	8.6847	16	1.3153	9.9995	23	3 4.8
78	8.6858	16	8.6863	16	1.3137	9.9995	22	4 6.4
79	8.6873	15	8.6878	15	1.3122	9.9995	21	5 8.0
80	8.6889	16	8.6894	16	1.3106	9.9995	20	6 9.6
81	8.6904	15	8.6909	15	1.3091	9.9995	19	7 11.2
82	8.6920	16	8.6925	16	1.3075	9.9995	18	8 12.8
83	8.6935	15	8.6940	15	1.3060	9.9995	17	9 14.4
84	8.6950	15	8.6956	16	1.3044	9.9995	16	15
85	8.6965	15	8.6971	15	1.3029	9.9995	15	1 1.5
86	8.6981	16	8.6986	15	1.3014	9.9995	14	2 3.0
87	8.6996	15	8.7001	15	1.2999	9.9995	13	3 4.5
88	8.7011	15	8.7016	15	1.2984	9.9995	12	4 6.0
89	8.7026	15	8.7031	15	1.2969	9.9994	11	5 7.5
90	8.7041	15	8.7046	15	1.2954	9.9994	10	6 9.0
91	8.7056	15	8.7061	15	1.2939	9.9994	09	7 10.5
92	8.7071	15	8.7076	15	1.2924	9.9994	08	8 12.0
93	8.7086	15	8.7091	15	1.2909	9.9994	07	9 13.5
94	8.7100	14	8.7106	15	1.2894	9.9994	06	14
95	8.7115	15	8.7121	15	1.2879	9.9994	05	1 1.4
96	8.7130	15	8.7136	15	1.2864	9.9994	04	2 2.8
97	8.7144	14	8.7150	14	1.2850	9.9994	03	3 4.2
98	8.7159	15	8.7165	15	1.2835	9.9994	02	4 5.6
99	8.7174	15	8.7179	14	1.2821	9.9994	01	5 7.0
100	8.7188	14	8.7194	15	1.2806	9.9994	00	6 8.4
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	1°/100	7 9.8
								8 11.2
								9 12.6

1°/100	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.		P. P.
00	8.7188		8.7194		1.2806	9.9994	100	
		14		14				
01	8.7202		8.7208		1.2792	9.9994	99	
		15		15				
02	8.7217		8.7223		1.2777	9.9994	98	
		14		14				
03	8.7231		8.7237		1.2763	9.9994	97	
		14		15				15
04	8.7245		8.7252		1.2748	9.9994	96	1 1.5
		15		14				2 3.0
05	8.7260		8.7266		1.2734	9.9994	95	3 4.5
		14		14				4 6.0
06	8.7274		8.7280		1.2720	9.9994	94	5 7.5
		14		14				6 9.0
07	8.7288		8.7294		1.2706	9.9994	93	7 10.5
		14		14				8 12.0
08	8.7302		8.7308		1.2692	9.9994	92	9 13.5
		14		15				
09	8.7316		8.7323		1.2677	9.9994	91	
		14		14				
10	8.7330		8.7337		1.2663	9.9994	90	
		14		14				
11	8.7344		8.7351		1.2649	9.9994	89	
		14		14				
12	8.7358		8.7365		1.2635	9.9994	88	
		14		14				
13	8.7372		8.7379		1.2621	9.9994	87	
		14		13				
14	8.7386		8.7392		1.2608	9.9993	86	
		14		14				
15	8.7400		8.7406		1.2594	9.9993	85	
		13		14				14
16	8.7413		8.7420		1.2580	9.9993	84	1 1.4
		14		14				2 2.8
17	8.7427		8.7434		1.2566	9.9993	83	3 4.2
		14		14				4 5.6
18	8.7441		8.7448		1.2552	9.9993	82	5 7.0
		13		13				6 8.4
19	8.7454		8.7461		1.2539	9.9993	81	7 9.8
		14		14				8 11.2
20	8.7468		8.7475		1.2525	9.9993	80	9 12.6
		14		13				
21	8.7482		8.7488		1.2512	9.9993	79	
		13		14				
22	8.7495		8.7502		1.2498	9.9993	78	
		13		13				
23	8.7508		8.7515		1.2485	9.9993	77	
		14		14				
24	8.7522		8.7529		1.2471	9.9993	76	
		13		13				
25	8.7535		8.7542		1.2458	9.9993	75	
		14		14				
26	8.7549		8.7556		1.2444	9.9993	74	
		13		13				
27	8.7562		8.7569		1.2431	9.9993	73	
		13		13				13
28	8.7575		8.7582		1.2418	9.9993	72	1 1.3
		13		14				2 2.6
29	8.7588		8.7596		1.2404	9.9993	71	3 3.9
		14		13				4 5.2
30	8.7602		8.7609		1.2391	9.9993	70	5 6.5
		13		13				6 7.8
31	8.7615		8.7622		1.2378	9.9993	69	7 9.1
		13		13				8 10.4
32	8.7628		8.7635		1.2365	9.9993	68	9 11.7
		13		13				
33	8.7641		8.7648		1.2352	9.9993	67	
		13		13				
34	8.7654		8.7661		1.2339	9.9993	66	
		13		13				
35	8.7667		8.7674		1.2326	9.9993	65	
		13		13				
36	8.7680		8.7687		1.2313	9.9993	64	
		13		13				
37	8.7693		8.7700		1.2300	9.9992	63	
		12		13				
38	8.7705		8.7713		1.2287	9.9992	62	
		13		13				
39	8.7718		8.7726		1.2274	9.9992	61	
		13		13				12
40	8.7731		8.7739		1.2261	9.9992	60	1 1.2
		13		12				2 2.4
41	8.7744		8.7751		1.2249	9.9992	59	3 3.6
		12		13				4 4.8
42	8.7756		8.7764		1.2236	9.9992	58	5 6.0
		13		13				6 7.2
43	8.7769		8.7777		1.2223	9.9992	57	7 8.4
		13		13				8 9.6
44	8.7782		8.7790		1.2210	9.9992	56	9 10.8
		12		12				
45	8.7794		8.7802		1.2198	9.9992	55	
		13		13				
46	8.7807		8.7815		1.2185	9.9992	54	
		12		12				
47	8.7819		8.7827		1.2173	9.9992	53	
		13		13				
48	8.7832		8.7840		1.2160	9.9992	52	
		12		12				
49	8.7844		8.7852		1.2148	9.9992	51	
		13		13				
50	8.7857		8.7865		1.2135	9.9992	50	
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	1°/100	

1°/100	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.		P. P.
50	8.7857		8.7865		1.2135	9.9992	**50**	
		12		12				
51	8.7869		8.7877		1.2123	9.9992	49	
		12		13				
52	8.7881		8.7890		1.2110	9.9992	48	
		13		12				
53	8.7894		8.7902		1.2098	9.9992	47	
		12		12				
54	8.7906		8.7914		1.2086	9.9992	46	
		12		13				
55	8.7918		8.7927		1.2073	9.9992	45	
		12		12				**13**
56	8.7930		8.7939		1.2061	9.9992	44	1 | 1.3
		13		12				2 | 2.6
57	8.7943		8.7951		1.2049	9.9992	43	3 | 3.9
		12		12				4 | 5.2
58	8.7955		8.7963		1.2037	9.9992	42	5 | 6.5
		12		12				6 | 7.8
59	8.7967		8.7975		1.2025	9.9991	41	7 | 9.1
		12		13				8 | 10.4
60	8.7979		8.7988		1.2012	9.9991	**40**	9 | 11.7
		12		12				
61	8.7991		8.8000		1.2000	9.9991	39	
		12		12				
62	8.8003		8.8012		1.1988	9.9991	38	
		12		12				
63	8.8015		8.8024		1.1976	9.9991	37	
		12		12				
64	8.8027		8.8036		1.1964	9.9991	36	
		12		12				
65	8.8039		8.8048		1.1952	9.9991	35	
		12		11				
66	8.8051		8.8059		1.1941	9.9991	34	
		11		12				**12**
67	8.8062		8.8071		1.1929	9.9991	33	1 | 1.2
		12		12				2 | 2.4
68	8.8074		8.8083		1.1917	9.9991	32	3 | 3.6
		12		12				4 | 4.8
69	8.8086		8.8095		1.1905	9.9991	31	5 | 6.0
		12		12				6 | 7.2
70	8.8098		8.8107		1.1893	9.9991	**30**	7 | 8.4
		11		12				8 | 9.6
71	8.8109		8.8119		1.1881	9.9991	29	9 | 10.8
		12		11				
72	8.8121		8.8130		1.1870	9.9991	28	
		12		12				
73	8.8133		8.8142		1.1858	9.9991	27	
		11		12				
74	8.8144		8.8154		1.1846	9.9991	26	
		12		11				
75	8.8156		8.8165		1.1835	9.9991	25	
		12		12				
76	8.8168		8.8177		1.1823	9.9991	24	
		11		11				
77	8.8179		8.8188		1.1812	9.9991	23	**11**
		12		12				1 | 1.1
78	8.8191		8.8200		1.1800	9.9991	22	2 | 2.2
		11		12				3 | 3.3
79	8.8202		8.8212		1.1788	9.9990	21	4 | 4.4
		11		11				5 | 5.5
80	8.8213		8.8223		1.1777	9.9990	**20**	6 | 6.6
		12		11				7 | 7.7
81	8.8225		8.8234		1.1766	9.9990	19	8 | 8.8
		11		12				9 | 9.9
82	8.8236		8.8246		1.1754	9.9990	18	
		12		11				
83	8.8248		8.8257		1.1743	9.9990	17	
		11		12				
84	8.8259		8.8269		1.1731	9.9990	16	
		11		11				
85	8.8270		8.8280		1.1720	9.9990	15	
		11		11				
86	8.8281		8.8291		1.1709	9.9990	14	
		12		11				
87	8.8293		8.8302		1.1698	9.9990	13	
		11		12				**10**
88	8.8304		8.8314		1.1686	9.9990	12	1 | 1.0
		11		11				2 | 2.0
89	8.8315		8.8325		1.1675	9.9990	11	3 | 3.0
		11		11				4 | 4.0
90	8.8326		8.8336		1.1664	9.9990	**10**	5 | 5.0
		11		11				6 | 6.0
91	8.8337		8.8347		1.1653	9.9990	09	7 | 7.0
		11		11				8 | 8.0
92	8.8348		8.8358		1.1642	9.9990	08	9 | 9.0
		11		12				
93	8.8359		8.8370		1.1630	9.9990	07	
		11		11				
94	8.8370		8.8381		1.1619	9.9990	06	
		11		11				
95	8.8381		8.8392		1.1608	9.9990	05	
		11		11				
96	8.8392		8.8403		1.1597	9.9990	04	
		11		11				
97	8.8403		8.8414		1.1586	9.9990	03	
		11		11				
98	8.8414		8.8425		1.1575	9.9990	02	
		11		11				
99	8.8425		8.8436		1.1564	9.9989	01	
		11		10				
100	8.8436		8.8446		1.1554	9.9989	**00**	
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	1°/100	

1°/100	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.		P. P.
00	8.8436		8.8446		1.1554	9.9989	**100**	
01	8.8447	11	8.8457	11	1.1543	9.9989	99	
02	8.8457	10	8.8468	11	1.1532	9.9989	98	
03	8.8468	11	8.8479	11	1.1521	9.9989	97	
04	8.8479	11	8.8490	11	1.1510	9.9989	96	
05	8.8490	11	8.8501	11	1.1499	9.9989	95	
06	8.8500	10	8.8511	10	1.1489	9.9989	94	
07	8.8511	11	8.8522	11	1.1478	9.9989	93	
08	8.8522	11	8.8533	11	1.1467	9.9989	92	**11**
09	8.8532	10	8.8543	10	1.1457	9.9989	91	1 1.1
10	8.8543	11	8.8554	11	1.1446	9.9989	**90**	2 2.2
11	8.8553	10	8.8565	11	1.1435	9.9989	89	3 3.3
12	8.8564	11	8.8575	10	1.1425	9.9989	88	4 4.4
13	8.8575	11	8.8586	11	1.1414	9.9989	87	5 5.5
14	8.8585	10	8.8596	10	1.1404	9.9989	86	6 6.6
15	8.8595	10	8.8607	11	1.1393	9.9989	85	7 7.7
16	8.8606	11	8.8617	10	1.1383	9.9989	84	8 8.8
17	8.8616	10	8.8628	11	1.1372	9.9988	83	9 9.9
18	8.8627	11	8.8638	10	1.1362	9.9988	82	
19	8.8637	10	8.8649	11	1.1351	9.9988	81	
20	8.8647	10	8.8659	10	1.1341	9.9988	**80**	
21	8.8658	11	8.8669	10	1.1331	9.9988	79	
22	8.8668	10	8.8680	11	1.1320	9.9988	78	
23	8.8678	10	8.8690	10	1.1310	9.9988	77	**10**
24	8.8688	10	8.8700	10	1.1300	9.9988	76	1 1.0
25	8.8699	11	8.8711	11	1.1289	9.9988	75	2 2.0
26	8.8709	10	8.8721	10	1.1279	9.9988	74	3 3.0
27	8.8719	10	8.8731	10	1.1269	9.9988	73	4 4.0
28	8.8729	10	8.8741	10	1.1259	9.9988	72	5 5.0
29	8.8739	10	8.8751	10	1.1249	9.9988	71	6 6.0
30	8.8749	10	8.8762	11	1.1238	9.9988	**70**	7 7.0
31	8.8759	10	8.8772	10	1.1228	9.9988	69	8 8.0
32	8.8769	10	8.8782	10	1.1218	9.9988	68	9 9.0
33	8.8780	11	8.8792	10	1.1208	9.9988	67	
34	8.8790	10	8.8802	10	1.1198	9.9988	66	
35	8.8799	9	8.8812	10	1.1188	9.9987	65	
36	8.8809	10	8.8822	10	1.1178	9.9987	64	
37	8.8819	10	8.8832	10	1.1168	9.9987	63	**9**
38	8.8829	10	8.8842	10	1.1158	9.9987	62	1 0.9
39	8.8839	10	8.8852	10	1.1148	9.9987	61	2 1.8
40	8.8849	10	8.8862	10	1.1138	9.9987	**60**	3 2.7
41	8.8859	10	8.8872	10	1.1128	9.9987	59	4 3.6
42	8.8869	10	8.8882	10	1.1118	9.9987	58	5 4.5
43	8.8878	9	8.8891	9	1.1109	9.9987	57	6 5.4
44	8.8888	10	8.8901	10	1.1099	9.9987	56	7 6.3
45	8.8898	10	8.8911	10	1.1089	9.9987	55	8 7.2
46	8.8908	10	8.8921	10	1.1079	9.9987	54	9 8.1
47	8.8917	9	8.8931	10	1.1069	9.9987	53	
48	8.8927	10	8.8940	9	1.1060	9.9987	52	
49	8.8937	10	8.8950	10	1.1050	9.9987	51	
50	8.8946	9	8.8960	10	1.1040	9.9987	**50**	
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	1°/100	

1°/100	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.		P. P.
50	8.8946		8.8960		1.1040	9.9987	**50**	
		10		10				
51	8.8956		8.8970		1.1030	9.9987	49	
52	8.8966	10	8.8979	9	1.1021	9.9986	48	
53	8.8975	9	8.8989	10	1.1011	9.9986	47	
		10		9				
54	8.8985		8.8998		1.1002	9.9986	46	
55	8.8994	9	8.9008	10	1.0992	9.9986	45	
56	8.9004	10	8.9018	10	1.0982	9.9986	44	
		9		9				
57	8.9013		8.9027		1.0973	9.9986	43	
58	8.9023	10	8.9037	10	1.0963	9.9986	42	**10**
59	8.9032	9	8.9046	9	1.0954	9.9986	41	1 1.0
		10		10				2 2.0
60	8.9042		8.9056		1.0944	9.9986	**40**	3 3.0
		9		9				4 4.0
61	8.9051		8.9065		1.0935	9.9986	39	5 5.0
62	8.9060	9	8.9075	10	1.0925	9.9986	38	6 6.0
63	8.9070	10	8.9084	9	1.0916	9.9986	37	7 7.0
		9		9				8 8.0
64	8.9079		8.9093		1.0907	9.9986	36	9 9.0
65	8.9089	10	8.9103	10	1.0897	9.9986	35	
66	8.9098	9	8.9112	9	1.0888	9.9986	34	
		9		10				
67	8.9107		8.9122		1.0878	9.9986	33	
68	8.9116	9	8.9131	9	1.0869	9.9985	32	
69	8.9126	10	8.9140	9	1.0860	9.9985	31	
		9		10				
70	8.9135		8.9150		1.0850	9.9985	**30**	
		9		9				
71	8.9144		8.9159		1.0841	9.9985	29	
72	8.9153	9	8.9168	9	1.0832	9.9985	28	**9**
73	8.9162	9	8.9177	9	1.0823	9.9985	27	1 0.9
		10		9				2 1.8
74	8.9172		8.9186		1.0814	9.9985	26	3 2.7
75	8.9181	9	8.9196	10	1.0804	9.9985	25	4 3.6
76	8.9190	9	8.9205	9	1.0795	9.9985	24	5 4.5
		9		9				6 5.4
77	8.9199		8.9214		1.0786	9.9985	23	7 6.3
78	8.9208	9	8.9223	9	1.0777	9.9985	22	8 7.2
79	8.9217	9	8.9232	9	1.0768	9.9985	21	9 8.1
		9		9				
80	8.9226		8.9241		1.0759	9.9985	**20**	
		9		9				
81	8.9235		8.9250		1.0750	9.9985	19	
82	8.9244	9	8.9260	10	1.0740	9.9985	18	
83	8.9253	9	8.9269	9	1.0731	9.9985	17	
		9		9				
84	8.9262		8.9278		1.0722	9.9984	16	
85	8.9271	9	8.9287	9	1.0713	9.9984	15	
86	8.9280	9	8.9296	9	1.0704	9.9984	14	
		9		9				**8**
87	8.9289		8.9305		1.0695	9.9984	13	1 0.8
88	8.9298	9	8.9313	8	1.0687	9.9984	12	2 1.6
89	8.9307	9	8.9322	9	1.0678	9.9984	11	3 2.4
		8		9				4 3.2
90	8.9315		8.9331		1.0669	9.9984	**10**	5 4.0
		9		9				6 4.8
91	8.9324		8.9340		1.0660	9.9984	09	7 5.6
92	8.9333	9	8.9349	9	1.0651	9.9984	08	8 6.4
93	8.9342	9	8.9358	9	1.0642	9.9984	07	9 7.2
		9		9				
94	8.9351		8.9367		1.0633	9.9984	06	
95	8.9359	8	8.9376	9	1.0624	9.9984	05	
96	8.9368	9	8.9384	8	1.0616	9.9984	04	
		9		9				
97	8.9377		8.9393		1.0607	9.9984	03	
98	8.9386	9	8.9402	9	1.0598	9.9984	02	
99	8.9394	8	8.9411	9	1.0589	9.9984	01	
100	8.9403	9	8.9420	9	1.0580	9.9983	**00**	
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	1°/100	

1°/100	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.		P. P.
00	8.9403		8.9420		1.0580	9.9983	**100**	
01	8.9412	9	8.9428	8	1.0572	9.9983	99	
02	8.9420	8	8.9437	9	1.0563	9.9983	98	
03	8.9429	9	8.9446	9	1.0554	9.9983	97	
		8		8				
04	8.9437		8.9454		1.0546	9.9983	96	
05	8.9446	9	8.9463	9	1.0537	9.9983	95	
06	8.9455	9	8.9472	9	1.0528	9.9983	94	
		8		8				
07	8.9463		8.9480		1.0520	9.9983	93	
08	8.9472	9	8.9489	9	1.0511	9.9983	92	
09	8.9480	8	8.9497	8	1.0503	9.9983	91	
10	8.9489	9	8.9506	9	1.0494	9.9983	**90**	
11	8.9497	8	8.9515	9	1.0485	9.9983	89	9
12	8.9506	9	8.9523	8	1.0477	9.9983	88	1 0.9
13	8.9514	8	8.9532	9	1.0468	9.9983	87	2 1.8
		9		8				3 2.7
14	8.9523		8.9540		1.0460	9.9983	86	4 3.6
15	8.9531	8	8.9549	9	1.0451	9.9982	85	5 4.5
16	8.9539	8	8.9557	8	1.0443	9.9982	84	6 5.4
		9		8				7 6.3
17	8.9548		8.9565		1.0435	9.9982	83	8 7.2
18	8.9556	8	8.9574	9	1.0426	9.9982	82	9 8.1
19	8.9565	9	8.9582	8	1.0418	9.9982	81	
20	8.9573	8	8.9591	9	1.0409	9.9982	**80**	
21	8.9581	8	8.9599	8	1.0401	9.9982	79	
22	8.9589	8	8.9608	9	1.0392	9.9982	78	
23	8.9598	9	8.9616	8	1.0384	9.9982	77	
		8		8				
24	8.9606		8.9624		1.0376	9.9982	76	
25	8.9614	8	8.9633	9	1.0367	9.9982	75	
26	8.9623	9	8.9641	8	1.0359	9.9982	74	
		8		8				
27	8.9631		8.9649		1.0351	9.9982	73	
28	8.9639	8	8.9657	8	1.0343	9.9982	72	
29	8.9647	8	8.9666	9	1.0334	9.9981	71	
30	8.9655	8	8.9674	8	1.0326	9.9981	**70**	
31	8.9664	9	8.9682	8	1.0318	9.9981	69	8
32	8.9672	8	8.9690	8	1.0310	9.9981	68	1 0.8
33	8.9680	8	8.9699	9	1.0301	9.9981	67	2 1.6
		8		8				3 2.4
34	8.9688		8.9707		1.0293	9.9981	66	4 3.2
35	8.9696	8	8.9715	8	1.0285	9.9981	65	5 4.0
36	8.9704	8	8.9723	8	1.0277	9.9981	64	6 4.8
		8		8				7 5.6
37	8.9712		8.9731		1.0269	9.9981	63	8 6.4
38	8.9720	8	8.9739	8	1.0261	9.9981	62	9 7.2
39	8.9728	8	8.9747	8	1.0253	9.9981	61	
40	8.9736	8	8.9756	9	1.0244	9.9981	**60**	
41	8.9744	8	8.9764	8	1.0236	9.9981	59	
42	8.9752	8	8.9772	8	1.0228	9.9981	58	
43	8.9760	8	8.9780	8	1.0220	9.9980	57	
		8		8				
44	8.9768		8.9788		1.0212	9.9980	56	
45	8.9776	8	8.9796	8	1.0204	9.9980	55	
46	8.9784	8	8.9804	8	1.0196	9.9980	54	
		8		8				
47	8.9792		8.9812		1.0188	9.9980	53	
48	8.9800	8	8.9820	8	1.0180	9.9980	52	
49	8.9808	8	8.9828	8	1.0172	9.9980	51	
50	8.9816	8	8.9836	8	1.0164	9.9980	**50**	
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	1°/100	

1°/100	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.		P. P.
50	8.9816		8.9836		1.0164	9.9980	**50**	
		8		8				
51	8.9824		8.9844		1.0156	9.9980	49	
52	8.9831	7	8.9852	8	1.0148	9.9980	48	
53	8.9839	8	8.9860	8	1.0140	9.9980	47	
		8		7				
54	8.9847		8.9867		1.0133	9.9980	46	
55	8.9855	8	8.9875	8	1.0125	9.9980	45	
56	8.9863	8	8.9883	8	1.0117	9.9980	44	
		7		8				
57	8.9870		8.9891		1.0109	9.9979	43	
58	8.9878	8	8.9899	8	1.0101	9.9979	42	
59	8.9886	8	8.9907	8	1.0093	9.9979	41	
60	8.9894	8	8.9915	8	1.0085	9.9979	**40**	
		7		7				
61	8.9901		8.9922		1.0078	9.9979	39	8
62	8.9909	8	8.9930	8	1.0070	9.9979	38	1 0.8
63	8.9917	8	8.9938	8	1.0062	9.9979	37	2 1.6
		8		8				3 2.4
64	8.9925		8.9946		1.0054	9.9979	36	4 3.2
65	8.9932	7	8.9953	7	1.0047	9.9979	35	5 4.0
66	8.9940	8	8.9961	8	1.0039	9.9979	34	6 4.8
		8		8				7 5.6
67	8.9948		8.9969		1.0031	9.9979	33	8 6.4
68	8.9955	7	8.9977	8	1.0023	9.9979	32	9 7.2
69	8.9963	8	8.9984	7	1.0016	9.9979	31	
		7		8				
70	8.9970	8	8.9992	8	1.0008	9.9978	**30**	
71	8.9978	8	9.0000	7	1.0000	9.9978	29	
72	8.9986	7	9.0007	8	0.9993	9.9978	28	
73	8.9993	8	9.0015	7	0.9985	9.9978	27	
74	9.0001		9.0022		0.9978	9.9978	26	
75	9.0008	7	9.0030	8	0.9970	9.9978	25	
76	9.0016	8	9.0038	8	0.9962	9.9978	24	
		7		7				
77	9.0023		9.0045		0.9955	9.9978	23	
78	9.0031	8	9.0053	8	0.9947	9.9978	22	
79	9.0038	7	9.0060	7	0.9940	9.9978	21	
80	9.0046	8	9.0068	8	0.9932	9.9978	**20**	
		7		7				
81	9.0053		9.0075		0.9925	9.9978	19	7
82	9.0061	8	9.0083	8	0.9917	9.9978	18	1 0.7
83	9.0068	7	9.0090	7	0.9910	9.9977	17	2 1.4
		7		8				3 2.1
84	9.0075		9.0098		0.9902	9.9977	16	4 2.8
85	9.0083	8	9.0105	7	0.9895	9.9977	15	5 3.5
86	9.0090	7	9.0113	8	0.9887	9.9977	14	6 4.2
		8		7				7 4.9
87	9.0098		9.0120		0.9880	9.9977	13	8 5.6
88	9.0105	7	9.0128	8	0.9872	9.9977	12	9 6.3
89	9.0112	7	9.0135	7	0.9865	9.9977	11	
		8		8				
90	9.0120	7	9.0143	7	0.9857	9.9977	**10**	
91	9.0127	7	9.0150	7	0.9850	9.9977	09	
92	9.0134	8	9.0157	8	0.9843	9.9977	08	
93	9.0142	7	9.0165	7	0.9835	9.9977	07	
94	9.0149		9.0172		0.9828	9.9977	06	
95	9.0156	7	9.0180	8	0.9820	9.9977	05	
96	9.0163	7	9.0187	7	0.9813	9.9976	04	
		8		7				
97	9.0171		9.0194		0.9806	9.9976	03	
98	9.0178	7	9.0202	8	0.9798	9.9976	02	
99	9.0185	7	9.0209	7	0.9791	9.9976	01	
100	9.0192	7	9.0216	7	0.9784	9.9976	**00**	
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	1°/100	

1°/100	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.		P. P.
00	9.0192		9.0216		0.9784	9.9976	**100**	
01	9.0200	8	9.0223	7	0.9777	9.9976	99	
02	9.0207	7	9.0231	8	0.9769	9.9976	98	
03	9.0214	7	9.0238	7	0.9762	9.9976	97	
		7		7				
04	9.0221		9.0245		0.9755	9.9976	96	
05	9.0228	7	9.0253	8	0.9747	9.9976	95	
06	9.0235	7	9.0260	7	0.9740	9.9976	94	
		8		7				
07	9.0243		9.0267		0.9733	9.9976	93	
08	9.0250	7	9.0274	7	0.9726	9.9976	92	
09	9.0257	7	9.0281	7	0.9719	9.9975	91	**8**
10	9.0264	7	9.0289	8	0.9711	9.9975	**90**	1 0.8
		7		7				2 1.6
11	9.0271		9.0296		0.9704	9.9975	89	3 2.4
12	9.0278	7	9.0303	7	0.9697	9.9975	88	4 3.2
13	9.0285	7	9.0310	7	0.9690	9.9975	87	5 4.0
		7		7				6 4.8
14	9.0292		9.0317		0.9683	9.9975	86	7 5.6
15	9.0299	7	9.0324	7	0.9676	9.9975	85	8 6.4
16	9.0306	7	9.0331	7	0.9669	9.9975	84	9 7.2
		7		7				
17	9.0313		9.0338		0.9662	9.9975	83	
18	9.0320	7	9.0346	8	0.9654	9.9975	82	
19	9.0327	7	9.0353	7	0.9647	9.9975	81	
20	9.0334	7	9.0360	7	0.9640	9.9975	**80**	
21	9.0341		9.0367		0.9633	9.9974	79	
22	9.0348	7	9.0374	7	0.9626	9.9974	78	**7**
23	9.0355	7	9.0381	7	0.9619	9.9974	77	1 0.7
		7		7				2 1.4
24	9.0362		9.0388		0.9612	9.9974	76	3 2.1
25	9.0369	7	9.0395	7	0.9605	9.9974	75	4 2.8
26	9.0376	7	9.0402	7	0.9598	9.9974	74	5 3.5
		7		7				6 4.2
27	9.0383		9.0409		0.9591	9.9974	73	7 4.9
28	9.0390	7	9.0416	7	0.9584	9.9974	72	8 5.6
29	9.0397	7	9.0423	7	0.9577	9.9974	71	9 6.3
		6		7				
30	9.0403	7	9.0430	7	0.9570	9.9974	**70**	
31	9.0410		9.0437		0.9563	9.9974	69	
32	9.0417	7	9.0444	7	0.9556	9.9974	68	
33	9.0424	7	9.0451	7	0.9549	9.9973	67	
		7		6				
34	9.0431		9.0457		0.9543	9.9973	66	
35	9.0438	7	9.0464	7	0.9536	9.9973	65	
36	9.0444	6	9.0471	7	0.9529	9.9973	64	**6**
		7		7				1 0.6
37	9.0451		9.0478		0.9522	9.9973	63	2 1.2
38	9.0458	7	9.0485	7	0.9515	9.9973	62	3 1.8
39	9.0465	7	9.0492	7	0.9508	9.9973	61	4 2.4
		7		7				5 3.0
40	9.0472		9.0499		0.9501	9.9973	**60**	6 3.6
41	9.0478	6	9.0506	7	0.9494	9.9973	59	7 4.2
42	9.0485	7	9.0512	6	0.9488	9.9973	58	8 4.8
43	9.0492	7	9.0519	7	0.9481	9.9973	57	9 5.4
		6		7				
44	9.0498		9.0526		0.9474	9.9973	56	
45	9.0505	7	9.0533	6	0.9467	9.9972	55	
46	9.0512	7	9.0540	7	0.9460	9.9972	54	
		7		6				
47	9.0519		9.0546		0.9454	9 9972	53	
48	9.0525	6	9.0553	7	0.9447	9.9972	52	
49	9.0532	7	9.0560	7	0.9440	9.9972	51	
50	9.0539	7	9.0567	7	0.9433	9.9972	**50**	
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	1°/100	

1°/100	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.		P. P.
50	9.0539		9.0567		0.9433	9.9972	**50**	
		6		6				
51	9.0545		9.0573		0.9427	9.9972	49	
		7		7				
52	9.0552		9.0580		0.9420	9.9972	48	
		6		7				
53	9.0558		9.0587		0.9413	9.9972	47	
		7		6				
54	9.0565		9.0593		0.9407	9.9972	46	
		7		7				
55	9.0572		9.0600		0.9400	9.9972	45	
		6		7				
56	9.0578		9.0607		0.9393	9.9971	44	
		7		7				
57	9.0585		9.0614		0.9386	9.9971	43	
		6		6				
58	9.0591		9.0620		0.9380	9.9971	42	
		7		7				
59	9.0598		9.0627		0.9373	9.9971	41	
		7		6				
60	9.0605		9.0633		0.9367	9.9971	**40**	
		6		7				
61	9.0611		9.0640		0.9360	9.9971	39	
		7		7				
62	9.0618		9.0647		0.9353	9.9971	38	
		6		6				
63	9.0624		9.0653		0.9347	9.9971	37	
		7		7				
64	9.0631		9.0660		0.9340	9.9971	36	
		6		7				
65	9.0637		9.0667		0.9333	9.9971	35	
		7		6				
66	9.0644		9.0673		0.9327	9.9971	34	
		6		7				
67	9.0650		9.0680		0.9320	9.9971	33	
		7		6				
68	9.0657		9.0686		0.9314	9.9970	32	
		6		7				
69	9.0663		9.0693		0.9307	9.9970	31	
		7		6				
70	9.0670		9.0699		0.9301	9.9970	**30**	
		6		7				
71	9.0676		9.0706		0.9294	9.9970	29	
		7		6				
72	9.0683		9.0712		0.9288	9.9970	28	
		6		7				
73	9.0689		9.0719		0.9281	9.9970	27	
		6		6				
74	9.0695		9.0725		0.9275	9.9970	26	
		7		7				
75	9.0702		9.0732		0.9268	9.9970	25	
		6		6				
76	9.0708		9.0738		0.9262	9.9970	24	
		7		7				
77	9.0715		9.0745		0.9255	9.9970	23	
		6		6				
78	9.0721		9.0751		0.9249	9.9970	22	
		6		7				
79	9.0727		9.0758		0.9242	9.9969	21	
		7		6				
80	9.0734		9.0764		0.9236	9.9969	**20**	
		6		7				
81	9.0740		9.0771		0.9229	9.9969	19	
		6		6				
82	9.0746		9.0777		0.9223	9.9969	18	
		7		7				
83	9.0753		9.0784		0.9216	9.9969	17	
		6		6				
84	9.0759		9.0790		0.9210	9.9969	16	
		6		6				
85	9.0765		9.0796		0.9204	9.9969	15	
		7		7				
86	9.0772		9.0803		0.9197	9.9969	14	
		6		6				
87	9.0778		9.0809		0.9191	9.9969	13	
		6		7				
88	9.0784		9.0816		0.9184	9.9969	12	
		6		6				
89	9.0790		9.0822		0.9178	9.9969	11	
		7		6				
90	9.0797		9.0828		0.9172	9.9968	**10**	
		6		7				
91	9.0803		9.0835		0.9165	9.9968	09	
		6		6				
92	9.0809		9.0841		0.9159	9.9968	08	
		7		6				
93	9.0816		9.0847		0.9153	9.9968	07	
		6		7				
94	9.0822		9.0854		0.9146	9.9968	06	
		6		6				
95	9.0828		9.0860		0.9140	9.9968	05	
		6		6				
96	9.0834		9.0866		0.9134	9.9968	04	
		6		7				
97	9.0840		9.0873		0.9127	9.9968	03	
		7		6				
98	9.0847		9.0879		0.9121	9.9968	02	
		6		6				
99	9.0853		9.0885		0.9115	9.9968	01	
		6		6				
100	9.0859		9.0891		0.9109	9.9968	**00**	

	7
1	0.7
2	1.4
3	2.1
4	2.8
5	3.5
6	4.2
7	4.9
8	5.6
9	6.3

	6
1	0.6
2	1.2
3	1.8
4	2.4
5	3.0
6	3.6
7	4.2
8	4.8
9	5.4

	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	1°/100	

1°/100	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.		P. P.
00	9.0859		9.0891		0.9109	9.9968	**100**	
01	9.0865	6	9.0898	7	0.9102	9.9967	99	
02	9.0871	6	9.0904	6	0.9096	9.9967	98	
03	9.0877	6	9.0910	6	0.9090	9.9967	97	
04	9.0884	7	9.0916	6	0.9084	9.9967	96	
05	9.0890	6	9.0923	7	0.9077	9.9967	95	
06	9.0896	6	9.0929	6	0.9071	9.9967	94	
07	9.0902	6	9.0935	6	0.9065	9.9967	93	
08	9.0908	6	9.0941	6	0.9059	9.9967	92	
09	9.0914	6	9.0947	6	0.9053	9.9967	91	7
10	9.0920	6	9.0954	7	0.9046	9.9967	**90**	1 0.7
11	9.0926	6	9.0960	6	0.9040	9.9966	89	2 1.4
12	9.0932	6	9.0966	6	0.9034	9.9966	88	3 2.1
13	9.0938	6	9.0972	6	0.9028	9.9966	87	4 2.8
14	9.0945	7	9.0978	6	0.9022	9.9966	86	5 3.5
15	9.0951	6	9.0984	6	0.9016	9.9966	85	6 4.2
16	9.0957	6	9.0991	7	0.9009	9.9966	84	7 4.9
17	9.0963	6	9.0997	6	0.9003	9.9966	83	8 5.6
18	9.0969	6	9.1003	6	0.8997	9.9966	82	9 6.3
19	9.0975	6	9.1009	6	0.8991	9.9966	81	
20	9.0981	6	9.1015	6	0.8985	9.9966	**80**	
21	9.0987	6	9.1021	6	0.8979	9.9966	79	
22	9.0993	6	9.1027	6	0.8973	9.9965	78	6
23	9.0999	6	9.1033	6	0.8967	9.9965	77	1 0.6
24	9.1005	6	9.1039	6	0.8961	9.9965	76	2 1.2
25	9.1011	6	9.1045	6	0.8955	9.9965	75	3 1.8
26	9.1017	6	9.1051	6	0.8949	9.9965	74	4 2.4
27	9.1022	5	9.1058	7	0.8942	9.9965	73	5 3.0
28	9.1028	6	9.1064	6	0.8936	9.9965	72	6 3.6
29	9.1034	6	9.1070	6	0.8930	9.9965	71	7 4.2
30	9.1040	6	9.1076	6	0.8924	9.9965	**70**	8 4.8
31	9.1046	6	9.1082	6	0.8918	9.9965	69	9 5.4
32	9.1052	6	9.1088	6	0.8912	9.9964	68	
33	9.1058	6	9.1094	6	0.8906	9.9964	67	
34	9.1064	6	9.1100	6	0.8900	9.9964	66	
35	9.1070	6	9.1106	6	0.8894	9.9964	65	
36	9.1076	6	9.1112	6	0.8888	9.9964	64	5
37	9.1081	5	9.1117	5	0.8883	9 9964	63	1 0.5
38	9.1087	6	9.1123	6	0.8877	9.9964	62	2 1.0
39	9.1093	6	9.1129	6	0.8871	9.9964	61	3 1.5
40	9.1099	6	9.1135	6	0.8865	9.9964	**60**	4 2.0
41	9.1105	6	9.1141	6	0.8859	9.9964	59	5 2.5
42	9.1111	6	9.1147	6	0.8853	9.9963	58	6 3.0
43	9.1116	5	9.1153	6	0.8847	9.9963	57	7 3.5
44	9.1122	6	9.1159	6	0.8841	9.9963	56	8 4.0
45	9.1128	6	9.1165	6	0.8835	9.9963	55	9 4.5
46	9.1134	6	9.1171	6	0.8829	9.9963	54	
47	9.1140	6	9.1177	6	0.8823	9 9963	53	
48	9.1145	5	9.1183	6	0.8817	9.9963	52	
49	9.1151	6	9.1188	5	0.8812	9.9963	51	
50	9.1157	6	9.1194	6	0.8806	9.9963	**50**	
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	1°/100	

1°/100	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.		P. P.
50	9.1157		9.1194		0.8806	9.9963	**50**	
51	9.1163	6	9.1200	6	0.8800	9.9963	49	
52	9.1168	5	9.1206	6	0.8794	9.9962	48	
53	9.1174	6	9.1212	6	0.8788	9.9962	47	
		6		6				
54	9.1180		9.1218		0.8782	9.9962	46	
55	9.1186	6	9.1223	5	0.8777	9.9962	45	
56	9.1191	5	9 1229	6	0.8771	9.9962	44	
		6		6				
57	9.1197		9.1235		0.8765	9.9962	43	
58	9.1203	6	9.1241	6	0.8759	9.9962	42	
59	9.1208	5	9.1247	6	0.8753	9.9962	41	
60	9.1214	6	9.1252	5	0.8748	9.9962	**40**	
61	9.1220	6	9.1258	6	0.8742	9.9962	39	**6**
62	9.1226	6	9.1264	6	0.8736	9.9961	38	1 0.6
63	9.1231	5	9.1270	6	0.8730	9.9961	37	2 1.2
		6		6				3 1.8
64	9.1237		9.1276		0.8724	9.9961	36	4 2.4
65	9.1242	5	9.1281	5	0.8719	9.9961	35	5 3.0
66	9.1248	6	9.1287	6	0.8713	9.9961	34	6 3.6
		6		6				7 4.2
67	9.1254		9.1293		0.8707	9.9961	33	8 4.8
68	9.1259	5	9.1299	6	0.8701	9.9961	32	9 5.4
69	9.1265	6	9.1304	5	0.8696	9.9961	31	
70	9.1271	6	9.1310	6	0.8690	9.9961	**30**	
71	9.1276	5	9.1316	6	0.8684	9.9961	29	
72	9.1282	6	9.1321	5	0.8679	9.9960	28	
73	9.1287	5	9.1327	6	0.8673	9.9960	27	
		6		6				
74	9.1293		9.1333		0.8667	9.9960	26	
75	9.1299	6	9.1338	5	0.8662	9.9960	25	
76	9.1304	5	9.1344	6	0.8656	9.9960	24	
		6		6				
77	9.1310		9.1350		0.8650	9.9960	23	
78	9.1315	5	9.1355	5	0.8645	9.9960	22	
79	9.1321	6	9.1361	6	0.8639	9.9960	21	
80	9.1326	5	9.1367	6	0.8633	9.9960	**20**	
81	9.1332	6	9.1372	5	0.8628	9.9960	19	**5**
82	9.1337	5	9.1378	6	0.8622	9.9959	18	.1 0.5
83	9.1343	6	9.1384	6	0.8616	9.9959	17	2 1.0
		5		5				3 1.5
84	9.1348		9.1389		0.8611	9.9959	16	4 2.0
85	9.1354	6	9.1395	6	0.8605	9.9959	15	5 2.5
86	9.1359	5	9.1400	5	0.8600	9.9959	14	6 3.0
		6		6				7 3.5
87	9.1365		9.1406		0.8594	9.9959	13	8 4.0
88	9.1370	5	9.1412	6	0.8588	9.9959	12	9 4.5
89	9.1376	6	9.1417	5	0.8583	9.9959	11	
90	9.1381	5	9.1423	6	0.8577	9.9959	**10**	
91	9.1387	6	9.1428	5	0.8572	9.9958	09	
92	9.1392	5	9.1434	6	0.8566	9.9958	08	
93	9.1398	6	9.1439	5	0.8561	9.9958	07	
		5		6				
94	9.1403		9.1445		0.8555	9.9958	06	
95	9.1409	6	9.1450	5	0.8550	9.9958	05	
96	9.1414	5	9.1456	6	0.8544	9.9958	04	
		5		5				
97	9.1419		9.1461		0.8539	9.9958	03	
98	9.1425	6	9.1467	6	0.8533	9.9958	02	
99	9.1430	5	9.1473	6	0.8527	9.9958	01	
100	9.1436	6	9.1478	5	0.8522	9.9958	**00**	
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	1°/100	

o	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.	d.
5.0	8.9403		8.9420		1.0580	9.9983	
		86		86			0
1	8.9489		8.9506		1.0494	9.9983	
		84		85			1
2	8.9573		8.9591		1.0409	9.9982	
		82		83			1
3	8.9655		8.9674		1.0326	9.9981	
		81		82			0
4	8.9736		8.9756		1.0244	9.9981	
		80		80			1
5	8.9816		8.9836		1.0164	9.9980	
		78		79			1
6	8.9894		8.9915		1.0085	9.9979	
		76		77			1
7	8.9970		8.9992		1.0008	9.9978	
		76		76			0
8	9.0046		9.0068		0.9932	9.9978	
		74		75			1
9	9.0120		9.0143		0.9857	9.9977	
		72		73			1
6.0	9.0192		9.0216		0.9784	9.9976	
		72		73			1
1	9.0264		9.0289		0.9711	9.9975	
		70		71			0
2	9.0334		9.0360		0.9640	9.9975	
		69		70			1
3	9.0403		9.0430		0.9570	9.9974	
		69		69			1
4	9.0472		9.0499		0.9501	9.9973	
		67		68			1
5	9.0539		9.0567		0.9433	9.9972	
		66		66			1
6	9.0605		9.0633		0.9367	9.9971	
		65		66			1
7	9.0670		9.0699		0.9301	9.9970	
		64		65			1
8	9.0734		9.0764		0.9236	9.9969	
		63		64			1
9	9.0797		9.0828		0.9172	9.9968	
		62		63			0
7.0	9.0859		9.0891		0.9109	9.9968	
		61		63			1
1	9.0920		9.0954		0.9046	9.9967	
		61		61			1
2	9.0981		9.1015		0.8985	9.9966	
		59		61			1
3	9.1040		9.1076		0.8924	9.9965	
		59		59			1
4	9.1099		9.1135		0.8865	9.9964	
		58		59			1
5	9.1157		9.1194		0.8806	9.9963	
		57		58			1
6	9.1214		9.1252		0.8748	9.9962	
		57		58			1
7	9.1271		9.1310		0.8690	9.9961	
		55		57			1
8	9.1326		9.1367		0.8633	9.9960	
		55		56			1
9	9.1381		9.1423		0.8577	9.9959	
		55		55			1
8.0	9.1436		9.1478		0.8522	9.9958	
		53		55			2
1	9.1489		9.1533		0.8467	9.9956	
		53		54			1
2	9.1542		9.1587		0.8413	9.9955	
		52		53			1
3	9.1594		9.1640		0.8360	9.9954	
		52		53			1
4	9.1646		9.1693		0.8307	9.9953	
		51		52			1
5	9.1697		9.1745		0.8255	9.9952	
		50		52			1
6	9.1747		9.1797		0.8203	9.9951	
		50		51			1
7	9.1797		9.1848		0.8152	9.9950	
		50		50			1
8	9.1847		9.1898		0.8102	9.9949	
		48		50			2
9	9.1895		9.1948		0.8052	9.9947	
		48		49			1
9.0	9.1943		9.1997		0.8003	9.9946	
		48		49			1
1	9.1991		9.2046		0.7954	9.9945	
		47		48			1
2	9.2038		9.2094		0.7906	9.9944	
		47		48			1
3	9.2085		9.2142		0.7858	9.9943	
		46		47			2
4	9.2131		9.2189		0.7811	9.9941	
		45		47			1
5	9.2176		9.2236		0.7764	9.9940	
		45		46			1
6	9.2221		9.2282		0.7718	9.9939	
		45		46			2
7	9.2266		9.2328		0.7672	9.9937	
		44		46			1
8	9.2310		9.2374		0.7626	9.9936	
		43		45			1
9	9.2353		9.2419		0.7581	9.9935	
		44		44			1
10.0	9.2397		9.2463		0.7537	9.9934	
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	d.

o	P. P.		
85.0	**62**	**61**	**60**
9	1 6.2	6.1	6.0
8	2 12.4	12.2	12.0
7	3 18.6	18.3	18.0
	4 24.8	24.4	24.0
	5 31.0	30.5	30.0
6	6 37.2	36.6	36.0
5	7 43.4	42.7	42.0
4	8 49.6	48.8	48.0
	9 55.8	54.9	54.0
3	**59**	**58**	**57**
2	1 5.9	5.8	5.7
1	2 11.8	11.6	11.4
	3 17.7	17.4	17.1
84.0	4 23.6	23.2	22.8
9	5 29.5	29.0	28.5
	6 35.4	34.8	34.2
8	7 41.3	40.6	39.9
7	8 47.2	46.4	45.6
	9 53.1	52.2	51.3
6	**56**	**55**	**54**
5	1 5.6	5.5	5.4
4	2 11.2	11.0	10.8
	3 16.8	16.5	16.2
3	4 22.4	22.0	21.6
2	5 28.0	27.5	27.0
1	6 33.6	33.0	32.4
	7 39.2	38.5	37.8
83.0	8 44.8	44.0	43.2
9	9 50.4	49.5	48.6
8	**53**	**52**	**51**
7	1 5.3	5.2	5.1
	2 10.6	10.4	10.2
6	3 15.9	15.6	15.3
5	4 21.2	20.8	20.4
4	5 26.5	26.0	25.5
	6 31.8	31.2	30.6
3	7 37.1	36.4	35.7
2	8 42.4	41.6	40.8
1	9 47.7	46.8	45.9
82.0	**50**	**49**	**48**
9	1 5.0	4.9	4.8
8	2 10.0	9.8	9.6
7	3 15.0	14.7	14.4
	4 20.0	19.6	19.2
	5 25.0	24.5	24.0
6	6 30.0	29.4	28.8
5	7 35.0	34.3	33.6
4	8 40.0	39.2	38.4
	9 45.0	44.1	43.2
3	**47**	**46**	**45**
2	1 4.7	4.6	4.5
1	2 9.4	9.2	9.0
	3 14.1	13.8	13.5
81.0	4 18.8	18.4	18.0
9	5 23.5	23.0	22.5
8	6 28.2	27.6	27.0
7	7 32.9	32.2	31.5
	8 37.6	36.8	36.0
6	9 42.3	41.4	40.5
5	**44**	**43**	**42**
4	1 4.4	4.3	4.2
	2 8.8	8.6	8.4
3	3 13.2	12.9	12.6
2	4 17.6	17.2	16.8
1	5 22.0	21.5	21.0
	6 26.4	25.8	25.2
80.0	7 30.8	30.1	29.4
	8 35.2	34.5	33.6
	9 39.6	38.8	37.8
	o		

o	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.	d.		P. P.	
10.0	9.2397		9.2463		0.7537	9.9934		**80.0**		**41**	**40**
		42		44			2		1	4.1	4.0
1	9.2439		9.2507		0.7493	9.9932		9	2	8.2	8.0
		43		44			1		3	12.3	12.0
2	9.2482		9.2551		0.7449	9.9931		8	4	16.4	16.0
		42		43			2		5	20.5	20.0
3	9.2524		9.2594		0.7406	9.9929		7	6	24.6	24.0
		41		43			1		7	28.7	28.0
4	9.2565		9.2637		0.7363	9.9928		6	8	32.8	32.0
		41		43			1		9	36.9	36.0
5	9.2606		9.2680		0.7320	9.9927		5			
		41		42			2			**39**	**38**
6	9.2647		9.2722		0.7278	9.9925		4	1	3.9	3.8
		40		42			1		2	7.8	7.6
7	9.2687		9.2764		0.7236	9.9924		3	3	11.7	11.4
		40		41			2		4	15.6	15.2
8	9.2727		9.2805		0.7195	9.9922		2	5	19.5	19.0
		40		41			1		6	23.4	22.8
9	9.2767		9.2846		0.7154	9.9921		1	7	27.3	26.6
		39		41			2		8	31.2	30.4
11.0	9.2806		9.2887		0.7113	9.9919		**79.0**	9	35.1	34.2
		39		40			1				
1	9.2845		9.2927		0.7073	9.9918		9		**37**	**36**
		38		40			2		1	3.7	3.6
2	9.2883		9.2967		0.7033	9.9916		8	2	7.4	7.2
		38		39			1		3	11.1	10.8
3	9.2921		9.3006		0.6994	9.9915		7	4	14.8	14.4
		38		40			2		5	18.5	18.0
4	9.2959		9.3046		0.6954	9.9913		6	6	22.2	21.6
		38		39			1		7	25.9	25.2
5	9.2997		9.3085		0.6915	9.9912		5	8	29.6	28.8
		37		38			2		9	33.3	32.4
6	9.3034		9.3123		0.6877	9.9910		4			
		36		39			1			**35**	**34**
7	9.3070		9.3162		0.6838	9.9909		3	1	3.5	3.4
		37		38			2		2	7.0	6.8
8	9.3107		9.3200		0.6800	9.9907		2	3	10.5	10.2
		36		37			1		4	14.0	13.6
9	9.3143		9.3237		0.6763	9.9906		1	5	17.5	17.0
		36		38			2		6	21.0	20.4
12.0	9.3179		9.3275		0.6725	9.9904		**78.0**	7	24.5	23.8
		35		37			2		8	28.0	27.2
1	9.3214		9.3312		0.6688	9.9902		9	9	31.5	30.6
		36		37			1				
2	9.3250		9.3349		0.6651	9.9901		8		**33**	**32**
		34		36			2		1	3.3	3.2
3	9.3284		9.3385		0.6615	9.9899		7	2	6.6	6.4
		35		37			2		3	9.9	9.6
4	9.3319		9.3422		0.6578	9.9897		6	4	13.2	12.8
		34		36			1		5	16.5	16.0
5	9.3353		9.3458		0.6542	9.9896		5	6	19.8	19.2
		34		35			2		7	23.1	22.4
6	9.3387		9.3493		0.6507	9.9894		4	8	26.4	25.6
		34		36			2		9	29.7	28.8
7	9.3421		9.3529		0.6471	9.9892		3			
		34		35			1			**31**	**30**
8	9.3455		9.3564		0.6436	9.9891		2	1	3.1	3.0
		33		35			2		2	6.2	6.0
9	9.3488		9.3599		0.6401	9.9889		1	3	9.3	9.0
		33		35			2		4	12.4	12.0
13.0	9.3521		9.3634		0.6366	9.9887		**77.0**	5	15.5	15.0
		33		34			2		6	18.6	18.0
1	9.3554		9.3668		0.6332	9.9885		9	7	21.7	21.0
		32		34			1		8	24.8	24.0
2	9.3586		9.3702		0.6298	9.9884		8	9	27.9	27.0
		32		34			2				
3	9.3618		9.3736		0.6264	9.9882		7		**29**	**28**
		32		34			2		1	2.9	2.8
4	9.3650		9.3770		0.6230	9.9880		6	2	5.8	5.6
		32		34			2		3	8.7	8.4
5	9.3682		9.3804		0.6196	9.9878		5	4	11.6	11.2
		31		33			2		5	14.5	14.0
6	9.3713		9.3837		0.6163	9.9876		4	6	17.4	16.8
		32		33			1		7	20.3	19.6
7	9.3745		9.3870		0.6130	9.9875		3	8	23.2	22.4
		30		33			2		9	26.1	25.2
8	9.3775		9.3903		0.6097	9.9873		2			
		31		32			2				
9	9.3806		9.3935		0.6065	9.9871		1			
		31		33			2				
14.0	9.3837		9.3968		0.6032	9.9869		**76.0**			
		30		32			2				
1	9.3867		9.4000		0.6000	9.9867		9			
		30		32			2				
2	9.3897		9.4032		0.5968	9.9865		8			
		30		32			2				
3	9.3927		9.4064		0.5936	9.9863		7			
		30		31			2				
4	9.3957		9.4095		0.5905	9.9861		6			
		29		32			2				
5	9.3986		9.4127		0.5873	9.9859		5			
		29		31			2				
6	9.4015		9.4158		0.5842	9.9857		4			
		29		31			2				
7	9.4044		9.4189		0.5811	9.9855		3			
		29		31			2				
8	9.4073		9.4220		0.5780	9.9853		2			
		29		30			2				
9	9.4102		9.4250		0.5750	9.9851		1			
		28		31			2				
15.0	9.4130		9.4281		0.5719	9.9849		**75.0**			
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	d.	o			

°	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.	d.	
15.0	9.4130		9.4281		0.5719	9.9849		**75.0**
		28		30			2	
1	9.4158		9.4311		0.5689	9.9847		9
		28		30			2	
2	9.4186		9.4341		0.5659	9.9845		8
		28		30			2	
3	9.4214		9.4371		0.5629	9.9843		7
		28		29			2	
4	9.4242		9.4400		0.5600	9.9841		6
		27		30			2	
5	9.4269		9.4430		0.5570	9.9839		5
		27		29			2	
6	9.4296		9.4459		0.5541	9.9837		4
		27		29			2	
7	9.4323		9.4488		0.5512	9.9835		3
		27		29			2	
8	9.4350		9.4517		0.5483	9.9833		2
		27		29			2	
9	9.4377		9.4546		0.5454	9.9831		1
		26		29			3	
16.0	9.4403		9.4575		0.5425	9.9828		**74.0**
		27		28			2	
1	9.4430		9.4603		0.5397	9.9826		9
		26		29			2	
2	9.4456		9.4632		0.5368	9.9824		8
		26		28			2	
3	9.4482		9.4660		0.5340	9.9822		7
		26		28			2	
4	9.4508		9.4688		0.5312	9.9820		6
		25		28			3	
5	9.4533		9.4716		0.5284	9.9817		5
		26		28			2	
6	9.4559		9.4744		0.5256	9.9815		4
		25		27			2	
7	9.4584		9.4771		0.5229	9.9813		3
		25		28			2	
8	9.4609		9.4799		0.5201	9.9811		2
		25		27			3	
9	9.4634		9.4826		0.5174	9.9808		1
		25		27			2	
17.0	9.4659		9.4853		0.5147	9.9806		**73.0**
		25		27			2	
1	9.4684		9.4880		0.5120	9.9804		9
		25		27			3	
2	9.4709		9.4907		0.5093	9.9801		8
		24		27			2	
3	9.4733		9.4934		0.5066	9.9799		7
		24		27			2	
4	9.4757		9.4961		0.5039	9.9797		6
		24		26			3	
5	9.4781		9.4987		0.5013	9.9794		5
		24		27			2	
6	9.4805		9.5014		0.4986	9.9792		4
		24		26			3	
7	9.4829		9.5040		0.4960	9.9789		3
		24		26			2	
8	9.4853		9.5066		0.4934	9.9787		2
		23		26			2	
9	9.4876		9.5092		0.4908	9.9785		1
		24		26			3	
18.0	9.4900		9.5118		0.4882	9.9782		**72.0**
		23		25			2	
1	9.4923		9.5143		0.4857	9.9780		9
		23		26			3	
2	9.4946		9.5169		0.4831	9.9777		8
		23		26			2	
3	9.4969		9.5195		0.4805	9.9775		7
		23		25			3	
4	9.4992		9.5220		0.4780	9.9772		6
		23		25			2	
5	9.5015		9.5245		0.4755	9.9770		5
		22		25			3	
6	9.5037		9.5270		0.4730	9.9767		4
		23		25			3	
7	9.5060		9.5295		0.4705	9.9764		3
		22		25			2	
8	9.5082		9.5320		0.4680	9.9762		2
		22		25			3	
9	9.5104		9.5345		0.4655	9.9759		1
		22		25			2	
19.0	9.5126		9.5370		0.4630	9.9757		**71.0**
		22		24			3	
1	9.5148		9.5394		0.4606	9.9754		9
		22		25			3	
2	9.5170		9.5419		0.4581	9.9751		8
		22		24			2	
3	9.5192		9.5443		0.4557	9.9749		7
		21		24			3	
4	9.5213		9.5467		0.4533	9.9746		6
		22		24			3	
5	9.5235		9.5491		0.4509	9.9743		5
		21		25			2	
6	9.5256		9.5516		0.4484	9.9741		4
		22		23			3	
7	9.5278		9.5539		0.4461	9.9738		3
		21		24			3	
8	9.5299		9.5563		0.4437	9.9735		2
		21		24			2	
9	9.5320		9.5587		0.4413	9.9733		1
		21		24			3	
20.0	9.5341		9.5611		0.4389	9.9730		**70.0**

P. P.

	30	29
1	3.0	2.9
2	6.0	5.8
3	9.0	8.7
4	12.0	11.6
5	15.0	14.5
6	18.0	17.4
7	21.0	20.3
8	24.0	23.2
9	27.0	26.1

	28	27
1	2.8	2.7
2	5.6	5.4
3	8.4	8.1
4	11.2	10.8
5	14.0	13.5
6	16.8	16.2
7	19.6	18.9
8	22.4	21.6
9	25.2	24.3

	26	25
1	2.6	2.5
2	5.2	5.0
3	7.8	7.5
4	10.4	10.0
5	13.0	12.5
6	15.6	15.0
7	18.2	17.5
8	20.8	20.0
9	23.4	22.5

	24
1	2.4
2	4.8
3	7.2
4	9.6
5	12.0
6	14.4
7	16.8
8	19.2
9	21.6

	23	22
1	2.3	2.2
2	4.6	4.4
3	6.9	6.6
4	9.2	8.8
5	11.5	11.0
6	13.8	13.2
7	16.1	15.4
8	18.4	17.6
9	20.7	19.8

	21
1	2.1
2	4.2
3	6.3
4	8.4
5	10.5
6	12.6
7	14.7
8	16.8
9	18.9

	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	d.	°

o	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.	d.		P. P.
20.0	9.5341		9.5611		0.4389	9.9730		**70.0**	
		20		23			3		
1	9.5361		9.5634		0.4366	9.9727		9	
		21		24			3		
2	9.5382		9.5658		0.4342	9.9724		8	
		20		23			2		
3	9.5402		9.5681		0.4319	9.9722		7	**23 22**
		21		23			3		1 2.3 2.2
4	9.5423		9.5704		0.4296	9.9719		6	2 4.6 4.4
		20		23			3		3 6.9 6.6
5	9.5443		9.5727		0.4273	9.9716		5	4 9.2 8.8
		20		23			3		5 11.5 11.0
6	9.5463		9.5750		0.4250	9.9713		4	6 13.8 13.2
		21		23			3		7 16.1 15.4
7	9.5484		9.5773		0.4227	9.9710		3	8 18.4 17.6
		20		23			3		9 20.7 19.8
8	9.5504		9.5796		0.4204	9.9707		2	
		19		23			3		
9	9.5523		9.5819		0.4181	9.9704		1	
		20		23			2		
21.0	9.5543		9.5842		0.4158	9.9702		**69.0**	
		20		22			3		
1	9.5563		9.5864		0.4136	9.9699		9	
		20		23			3		
2	9.5583		9.5887		0.4113	9.9696		8	
		19		22			3		**21 20**
3	9.5602		9.5909		0.4091	9.9693		7	1 2.1 2.0
		19		23			3		2 4.2 4.0
4	9.5621		9.5932		0.4068	9.9690		6	3 6.3 6.0
		20		22			3		4 8.4 8.0
5	9.5641		9.5954		0.4046	9.9687		5	5 10.5 10.0
		19		22			3		6 12.6 12.0
6	9.5660		9.5976		0.4024	9.9684		4	7 14.7 14.0
		19		22			3		8 16.8 16.0
7	9.5679		9.5998		0.4002	9.9681		3	9 18.9 18.0
		19		22			3		
8	9.5698		9.6020		0.3980	9.9678		2	
		19		22			3		
9	9.5717		9.6042		0.3958	9.9675		1	
		19		22			3		
22.0	9.5736		9.6064		0.3936	9.9672		**68.0**	
		18		22			3		
1	9.5754		9.6086		0.3914	9.9669		9	
		19		22			3		
2	9.5773		9.6108		0.3892	9.9666		8	**19**
		19		21			4		
3	9.5792		9.6129		0.3871	9.9662		7	1 1.9
		18		22			3		2 3.8
4	9.5810		9.6151		0.3849	9.9659		6	3 5.7
		18		21			3		4 7.6
5	9.5828		9.6172		0.3828	9.9656		5	5 9.5
		19		22			3		6 11.4
6	9.5847		9.6194		0.3806	9.9653		4	7 13.3
		18		21			3		8 15.2
7	9.5865		9.6215		0.3785	9.9650		3	9 17.1
		18		21			3		
8	9.5883		9.6236		0.3764	9.9647		2	
		18		21			4		
9	9.5901		9.6257		0.3743	9.9643		1	
		18		22			3		
23.0	9.5919		9.6279		0.3721	9.9640		**67.0**	
		18		21			3		
1	9.5937		9.6300		0.3700	9.9637		9	
		17		21			3		
2	9.5954		9.6321		0.3679	9.9634		8	**18 17**
		18		20			3		
3	9.5972		9.6341		0.3659	9.9631		7	1 1.8 1.7
		18		21			4		2 3.6 3.4
4	9.5990		9.6362		0.3638	9.9627		6	3 5.4 5.1
		17		21			3		4 7.2 6.8
5	9.6007		9.6383		0.3617	9.9624		5	5 9.0 8.5
		17		21			3		6 10.8 10.2
6	9.6024		9.6404		0.3596	9.9621		4	7 12.6 11.9
		18		20			4		8 14.4 13.6
7	9.6042		9.6424		0.3576	9.9617		3	9 16.2 15.3
		17		21			3		
8	9.6059		9.6445		0.3555	9.9614		2	
		17		20			3		
9	9.6076		9.6465		0.3535	9.9611		1	
		17		21			4		
24.0	9.6093		9.6486		0.3514	9.9607		**66.0**	
		17		20			3		
1	9.6110		9.6506		0.3494	9.9604		9	
		17		21			3		
2	9.6127		9.6527		0.3473	9.9601		8	**16**
		17		20			4		
3	9.6144		9.6547		0.3453	9.9597		7	1 1.6
		17		20			3		2 3.2
4	9.6161		9.6567		0.3433	9.9594		6	3 4.8
		16		20			4		4 6.4
5	9.6177		9.6587		0.3413	9.9590		5	5 8.0
		17		20			3		6 9.6
6	9.6194		9.6607		0.3393	9.9587		4	7 11.2
		16		20			4		8 12.8
7	9.6210		9.6627		0.3373	9.9583		3	9 14.4
		17		20			3		
8	9.6227		9.6647		0.3353	9.9580		2	
		16		20			4		
9	9.6243		9.6667		0.3333	9.9576		1	
		16		20			3		
25.0	9.6259		9.6687		0.3313	9.9573		**65.0**	
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan	Lg. Sin.	d.	o	

o	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.	d.		P. P.
25.0	9.6259		9.6687		0.3313	9.9573		**65.0**	
1	9.6276	17	9.6706	19	0.3294	9.9569	4	9	
2	9.6292	16	9.6726	20	0.3274	9.9566	3	8	
3	9.6308	16	9.6746	20	0.3254	9.9562	4	7	**20** **19**
		16		19			4		1 2.0 1.9
4	9.6324		9.6765		0.3235	9.9558		6	2 4.0 3.8
5	9.6340	16	9.6785	20	0.3215	9.9555	3	5	3 6.0 5.7
6	9.6356	16	9.6804	19	0.3196	9.9551	4	4	4 8.0 7.6
		15		20			3		5 10.0 9.5
7	9.6371		9.6824		0.3176	9.9548		3	6 12.0 11.4
8	9.6387	16	9.6843	19	0.3157	9.9544	4	2	7 14.0 13.3
9	9.6403	16	9.6863	20	0.3137	9.9540	4	1	8 16.0 15.2
26.0	9.6418	15	9.6882	19	0.3118	9.9537	3	**64.0**	9 18.0 17.1
1	9.6434	16	9.6901	19	0.3099	9.9533	4	9	
2	9.6449	15	9.6920	19	0.3080	9.9529	4	8	**18** **17**
3	9.6465	16	9.6939	19	0.3061	9.9525	4	7	1 1.8 1.7
		15		19			3		2 3.6 3.4
4	9.6480		9.6958		0.3042	9.9522		6	3 5.4 5.1
5	9.6495	15	9.6977	19	0.3023	9.9518	4	5	4 7.2 6.8
6	9.6510	15	9.6996	19	0.3004	9.9514	4	4	5 9.0 8.5
		16		19			4		6 10.8 10.2
7	9.6526		9.7015		0.2985	9.9510		3	7 12.6 11.9
8	9.6541	15	9.7034	19	0.2966	9.9506	4	2	8 14.4 13.6
9	9.6556	15	9.7053	19	0.2947	9.9503	3	1	9 16.2 15.3
27.0	9.6570	14	9.7072	19	0.2928	9.9499	4	**63.0**	
1	9.6585	15	9.7090	18	0.2910	9.9495	4	9	
2	9.6600	15	9.7109	19	0.2891	9.9491	4	8	**16** **15**
3	9.6615	15	9.7128	19	0.2872	9.9487	4	7	1 1.6 1.5
		14		18			4		2 3.2 3.0
4	9.6629		9.7146		0.2854	9.9483		6	3 4.8 4.5
5	9.6644	15	9.7165	19	0.2835	9.9479	4	5	4 6.4 6.0
6	9.6659	15	9.7183	18	0.2817	9.9475	4	4	5 8.0 7.5
		14		19			4		6 9.6 9.0
7	9.6673		9.7202		0.2798	9.9471		3	7 11.2 10.5
8	9.6687	14	9.7220	18	0.2780	9.9467	4	2	8 12.8 12.0
9	9.6702	15	9.7238	18	0.2762	9.9463	4	1	9 14.4 13.5
28.0	9.6716	14	9.7257	19	0.2743	9.9459	4	**62.0**	
1	9.6730	14	9.7275	18	0.2725	9.9455	4	9	
2	9.6744	14	9.7293	18	0.2707	9.9451	4	8	**14** **13**
3	9.6759	15	9.7311	18	0.2689	9.9447	4	7	1 1.4 1.3
		14		19			4		2 2.8 2.6
4	9.6773		9.7330		0.2670	9.9443		6	3 4.2 3.9
5	9.6787	14	9.7348	18	0.2652	9.9439	4	5	4 5.6 5.2
6	9.6801	14	9.7366	18	0.2634	9.9435	4	4	5 7.0 6.5
		13		18			4		6 8.4 7.8
7	9.6814		9.7384		0.2616	9.9431		3	7 9.8 9.1
8	9.6828	14	9.7402	18	0.2598	9.9427	4	2	8 11.2 10.4
9	9.6842	14	9.7420	18	0.2580	9.9422	5	1	9 12.6 11.7
29.0	9.6856	14	9.7438	18	0.2562	9.9418	4	**61.0**	
1	9.6869	13	9.7455	17	0.2545	9.9414	4	9	
2	9.6883	14	9.7473	18	0.2527	9.9410	4	8	**3** **4**
3	9.6896	13	9.7491	18	0.2509	9.9406	4	7	1 0.3 0.4
		14		18			5		2 0.6 0.8
4	9.6910		9.7509		0.2491	9.9401		6	3 0.9 1.2
5	9.6923	13	9.7526	17	0.2474	9.9397	4	5	4 1.2 1.6
6	9.6937	14	9.7544	18	0.2456	9.9393	4	4	5 1.5 2.0
		13		18			5		6 1.8 2.4
7	9.6950		9.7562		0.2438	9.9388		3	7 2.1 2.8
8	9.6963	13	9.7579	17	0.2421	9.9384	4	2	8 2.4 3.2
9	9.6977	14	9.7597	18	0.2403	9.9380	4	1	9 2.7 3.6
30.0	9.6990	13	9.7614	17	0.2386	9.9375	5	**60.0**	
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	d.	o	

o	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.	d.		P. P.
30.0	9.6990		9.7614		0.2386	9.9375		**60.0**	
1	9.7003	13	9.7632	18	0.2368	9.9371	4	9	
2	9.7016	13	9.7649	17	0.2351	9.9367	4	8	
3	9.7029	13	9.7667	18	0.2333	9.9362	5	7	**18** **17**
		13		17			4	1	1.8 1.7
4	9.7042		9.7684		0.2316	9.9358		2	3.6 3.4
5	9.7055	13	9.7701	17	0.2299	9.9353	5	3	5.4 5.1
6	9.7068	13	9.7719	18	0.2281	9.9349	4	4	7.2 6.8
		12		17			5	5	9.0 8.5
7	9.7080		9.7736		0.2264	9.9344		6	10.8 10.2
8	9.7093	13	9.7753	17	0.2247	9.9340	4	7	12.6 11.9
9	9.7106	13	9.7771	18	0.2229	9.9335	5	8	14.4 13.6
		12		17			4	9	16.2 15.3
31.0	9.7118		9.7788		0.2212	9.9331		**59.0**	
1	9.7131	13	9.7805	17	0.2195	9.9326	5	9	
2	9.7144	13	9.7822	17	0.2178	9.9322	4	8	
3	9.7156	12	9.7839	17	0.2161	9.9317	5	7	**16**
		12		17			5	1	1.6
4	9.7168		9.7856		0.2144	9.9312		2	3.2
5	9.7181	13	9.7873	17	0.2127	9.9308	4	3	4.8
6	9.7193	12	9.7890	17	0.2110	9.9303	5	4	6.4
		12		17			5	5	8.0
7	9.7205		9.7907		0.2093	9.9298		6	9.6
8	9.7218	13	9.7924	17	0.2076	9.9294	4	7	11.2
9	9.7230	12	9.7941	17	0.2059	9.9289	5	8	12.8
		12		17			5	9	14.4
32.0	9.7242		9.7958		0.2042	9.9284		**58.0**	
1	9.7254	12	9.7975	17	0.2025	9.9279	5	9	
2	9.7266	12	9.7992	17	0.2008	9.9275	4	8	
3	9.7278	12	9.8008	16	0.1992	9.9270	5	7	**13** **12**
		12		17			5	1	1.3 1.2
4	9.7290		9.8025		0.1975	9.9265		2	2.6 2.4
5	9.7302	12	9.8042	17	0.1958	9.9260	5	3	3.9 3.6
6	9.7314	12	9.8059	17	0.1941	9.9255	5	4	5.2 4.8
		12		16			4	5	6.5 6.0
7	9.7326		9.8075		0.1925	9.9251		6	7.8 7.2
8	9.7338	12	9.8092	17	0.1908	9.9246	5	7	9.1 8.4
9	9.7349	11	9.8109	17	0.1891	9.9241	5	8	10.4 9.6
		12		16			5	9	11.7 10.8
33.0	9.7361		9.8125		0.1875	9.9236		**57.0**	
1	9.7373	12	9.8142	17	0.1858	9.9231	5	9	
2	9.7384	11	9.8158	16	0.1842	9.9226	5	8	**11**
3	9.7396	12	9.8175	17	0.1825	9.9221	5	7	1.1
		11		16			5	1	2.2
4	9.7407		9.8191		0.1809	9.9216		2	3.3
5	9.7419	12	9.8208	17	0.1792	9.9211	5	3	4.4
6	9.7430	11	9.8224	16	0.1776	9.9206	5	4	5.5
		12		17			5	5	6.6
7	9.7442		9.8241		0.1759	9.9201		6	7.7
8	9.7453	11	9.8257	16	0.1743	9.9196	5	7	8.8
9	9.7464	11	9.8274	17	0.1726	9.9191	5	8	9.9
		12		16			5	9	
34.0	9.7476		9.8290		0.1710	9.9186		**56.0**	
1	9.7487	11	9.8306	16	0.1694	9.9181	5	9	
2	9.7498	11	9.8323	17	0.1677	9.9175	6	8	**5** **6**
3	9.7509	11	9.8339	16	0.1661	9.9170	5	7	0.5 0.6
		11		16			5	1	1.0 1.2
4	9.7520		9.8355		0.1645	9.9165		2	1.5 1.8
5	9.7531	11	9.8371	16	0.1629	9.9160	5	3	2.0 2.4
6	9.7542	11	9.8388	17	0.1612	9.9155	5	4	2.5 3.0
		11		16			6	5	3.0 3.6
7	9.7553		9.8404		0.1596	9.9149		6	3.5 4.2
8	9.7564	11	9.8420	16	0.1580	9.9144	5	7	4.0 4.8
9	9.7575	11	9.8436	16	0.1564	9.9139	5	8	4.5 5.4
		11		16			5	9	
35.0	9.7586		9.8452		0.1548	9.9134		**55.0**	
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	d.	o	

o	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.	d.		P. P.
35.0	9.7586		9.8452		0.1548	9.9134		**55.0**	
1	9.7597	11	9.8468	16	0.1532	9.9128	6	9	
2	9.7607	10	9.8484	16	0.1516	9.9123	5	8	
3	9.7618	11	9.8501	17	0.1499	9.9118	5	7	17 16
		11		16			6		1 1.7 1.6
4	9.7629		9.8517		0.1483	9.9112		6	2 3.4 3.2
5	9.7640	11	9.8533	16	0.1467	9.9107	5	5	3 5.1 4.8
6	9.7650	10	9.8549	16	0.1451	9.9101	6	4	4 6.8 6.4
		11		16			5		5 8.5 8.0
7	9.7661		9.8565		0.1435	9.9096		3	6 10.2 9.6
8	9.7671	10	9.8581	16	0.1419	9.9091	5	2	7 11.9 11.2
9	9.7682	11	9.8597	16	0.1403	9.9085	6	1	8 13.6 12.8
36.0	9.7692	10	9.8613	16	0.1387	9.9080	5	**54.0**	9 15.3 14.4
1	9.7703	11	9.8629	16	0.1371	9.9074	6	9	
2	9.7713	10	9.8644	15	0.1356	9.9069	5	8	
3	9.7723	10	9.8660	16	0.1340	9.9063	6	7	15
		11		16			6		1 1.5
4	9.7734		9.8676		0.1324	9.9057		6	2 3.0
5	9.7744	10	9.8692	16	0.1308	9.9052	5	5	3 4.5
6	9.7754	10	9.8708	16	0.1292	9.9046	6	4	4 6.0
		10		16			5		5 7.5
7	9.7764		9.8724		0.1276	9.9041		3	6 9.0
8	9.7774	10	9.8740	16	0.1260	9.9035	6	2	7 10.5
9	9.7785	11	9.8755	15	0.1245	9.9029	6	1	8 12.0
37.0	9.7795	10	9.8771	16	0.1229	9.9023	6	**53.0**	9 13.5
1	9.7805	10	9.8787	16	0.1213	9.9018	5	9	
2	9.7815	10	9.8803	16	0.1197	9.9012	6	8	11 10
3	9.7825	10	9.8818	15	0.1182	9.9006	6	7	1 1.1 1.0
		10		16			6		2 2.2 2.0
4	9.7835		9.8834		0.1166	9.9000		6	3 3.3 3.0
5	9.7844	9	9.8850	16	0.1150	9.8995	5	5	4 4.4 4.0
6	9.7854	10	9.3865	15	0.1135	9.8989	6	4	5 5.5 5.0
		10		16			6		6 6.6 6.0
7	9.7864		9.8881		0.1119	9.8983		3	7 7.7 7.0
8	9.7874	10	9.8897	16	0.1103	9.8977	6	2	8 8.8 8.0
9	9.7884	10	9.8912	15	0.1088	9.8971	6	1	9 9.9 9.0
38.0	9.7893	9	9.8928	16	0.1072	9.8965	6	**52.0**	
1	9.7903	10	9.8944	16	0.1056	9.8959	6	9	
2	9.7913	10	9.8959	15	0.1041	9.8953	6	8	
3	9.7922	9	9.8975	16	0.1025	9.8947	6	7	9
		10		15			6		1 0.9
4	9.7932		9.8990		0.1010	9.8941		6	2 1.8
5	9.7941	9	9.9006	16	0.0994	9.8935	6	5	3 2.7
6	9.7951	10	9.9022	16	0.0978	9.8929	6	4	4 3.6
		9		15			6		5 4.5
7	9.7960		9.9037		0.0963	9.8923		3	6 5.4
8	9.7970	10	9.9053	16	0.0947	9.8917	6	2	7 6.3
9	9.7979	9	9.9068	15	0.0932	9.8911	6	1	8 7.2
39.0	9.7989	10	9.9084	16	0.0916	9.8905	6	**51.0**	9 8.1
1	9.7998	9	9.9099	15	0.0901	9.8899	6	9	
2	9.8007	9	9.9115	16	0.0885	9.8893	6	8	
3	9.8017	10	9.9130	15	0.0870	9.8887	6	7	5 6
		9		16			7		1 0.5 0.6
4	9.8026		9.9146		0.0854	9.8880		6	2 1.0 1.2
5	9.8035	9	9.9161	15	0.0839	9.8874	6	5	3 1.5 1.8
6	9.8044	9	9.9176	15	0.0824	9.8868	6	4	4 2.0 2.4
		9		16			6		5 2.5 3.0
7	9.8053		9.9192		0.0808	9.8862		3	6 3.0 3.6
8	9.8063	10	9.9207	15	0.0793	9.8855	7	2	7 3.5 4.2
9	9.8072	9	9.9223	16	0.0777	9.8849	6	1	8 4.0 4.8
40.0	9.8081	9	9.9238	15	0.0762	9.8843	6	**50.0**	9 4.5 5.4
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	d.	o	

o	Lg. Sin.	d.	Lg. Tan.	c. d.	Lg. Cot.	Lg. Cos.	d.		P. P.
40.0	9.8081		9.9238		0.0762	9.8843		**50.0**	
		9		16			7		
1	9.8090	9	9.9254	15	0.0746	9.8836	6	9	
2	9.8099	9	9.9269	15	0.0731	9.8830	7	8	
3	9.8108	9	9.9284	16	0.0716	9.8823	6	7	**16**
		9							1 1.6
4	9.8117		9.9300		0.0700	9.8817		6	2 3.2
5	9.8125	8	9.9315	15	0.0685	9.8810	7	5	3 4.8
6	9.8134	9	9.9330	15	0.0670	9.8804	6	4	4 6.4
		9		16			7		5 8.0
7	9.8143		9.9346		0.0654	9.8797		3	6 9.6
8	9.8152	9	9.9361	15	0.0639	9.8791	6	2	7 11.2
9	9.8161	9	9.9376	15	0.0624	9.8784	7	1	8 12.8
		8		16			6		9 14.4
41.0	9.8169		9.9392		0.0608	9.8778		**49.0**	
		9		15			7		
1	9.8178	9	9.9407	15	0.0593	9.8771	6	9	
2	9.8187	9	9.9422	16	0.0578	9.8765	7	8	
3	9.8195	8	9.9438	15	0.0562	9.8758	7	7	**15**
		9					7		1 1.5
4	9.8204		9.9453		0.0547	9.8751		6	2 3.0
5	9.8213	9	9.9468	15	0.0532	9.8745	6	5	3 4.5
6	9.8221	8	9.9483	15	0.0517	9.8738	7	4	4 6.0
		9		16			7		5 7.5
7	9.8230		9.9499		0.0501	9.8731		3	6 9.0
8	9.8238	8	9.9514	15	0.0486	9.8724	7	2	7 10.5
9	9.8247	9	9.9529	15	0.0471	9.8718	6	1	8 12.0
		8		15			7		9 13.5
42.0	9.8255		9.9544		0.0456	9.8711		**48.0**	
		9		16			7		
1	9.8264	8	9.9560	15	0.0440	9.8704	7	9	
2	9.8272	8	9.9575	15	0.0425	9.8697	7	8	
3	9.8280	9	9.9590	15	0.0410	9.8690	7	7	**9**
							7		1 0.9
4	9.8289		9.9605		0.0395	9.8683		6	2 1.8
5	9.8297	8	9.9621	16	0.0379	9.8676	7	5	3 2.7
6	9.8305	8	9.9636	15	0.0364	9.8669	7	4	4 3.6
		8		15			7		5 4.5
7	9.8313		9.9651		0.0349	9.8662		3	6 5.4
8	9.8322	9	9.9666	15	0.0334	9.8655	7	2	7 6.3
9	9.8330	8	9.9681	15	0.0319	9.8648	7	1	8 7.2
		8		16			7		9 8.1
43.0	9.8338		9.9697	15	0.0303	9.8641		**47.0**	
		8					7		
1	9.8346	8	9.9712	15	0.0288	9.8634	7	9	
2	9.8354	8	9.9727	15	0.0273	9.8627	7	8	
3	9.8362	8	9.9742	15	0.0258	9.8620	7	7	**8**
							7		1 0.8
4	9.8370		9.9757		0.0243	9.8613		6	2 1.6
5	9.8378	8	9.9772	15	0.0228	9.8606	7	5	3 2.4
6	9.8386	8	9.9788	16	0.0212	9.8598	8	4	4 3.2
		8		15			7		5 4.0
7	9.8394		9.9803		0.0197	9.8591		3	6 4.8
8	9.8402	8	9.9818	15	0.0182	9.8584	7	2	7 5.6
9	9.8410	8	9.9833	15	0.0167	9.8577	7	1	8 6.4
		8		15			8		9 7.2
44.0	9.8418		9.9848		0.0152	9.8569		**46.0**	
		8		16			7		
1	9.8426	7	9.9864	15	0.0136	9.8562	7	9	
2	9.8433	8	9.9879	15	0.0121	9.8555	8	8	
3	9.8441	8	9.9894	15	0.0106	9.8547	7	7	**6** **7**
		8		15			7		1 0.6 0.7
4	9.8449		9.9909		0.0091	9.8540		6	2 1.2 1.4
5	9.8457	8	9.9924	15	0.0076	9.8532	8	5	3 1.8 2.1
6	9.8464	7	9.9939	15	0.0061	9.8525	7	4	4 2.4 2.8
		8		16			8		5 3.0 3.5
7	9.8472		9.9955		0.0045	9.8517		3	6 3.6 4.2
8	9.8480	8	9.9970	15	0.0030	9.8510	7	2	7 4.2 4.9
9	9.8487	7	9.9985	15	0.0015	9.8502	8	1	8 4.8 5.6
		8		15			7		9 5.4 6.3
45.0	9.8495		10.0000		0.0000	9.8495		**45.0**	
	Lg. Cos.	d.	Lg. Cot.	c. d.	Lg. Tan.	Lg. Sin.	d.	o